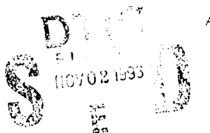




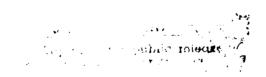
June 1993

Army Contractor and Civilian Maintenance, Supply, and Transportation Support During Operations Desert Shield and Desert Storm Volume 1: Study Report



AR113-01RDI

George B. Dibble Charles L. Horne, III William E. Lindsay



Prepared pursuant to Departmen of Defense Contract MDA903-90-C-0006. The views expressed here are those of the Logistics Management Institute at the time of issue but not necessarily those of the Department of Defense. Permission to quote or reproduce any part except for Government purposes must be obtained from the Logistics Management Institute.

Logistics Management Institute 6400 Goldsboro Road Bethesda, Maryland 20817-5886

93-26519

101



Executive Summary

ARMY CONTRACTOR AND CIVILIAN MAINTENANCE, SUPPLY, AND TRANSPORTATION SUPPORT DURING OPERATIONS DESERT SHIELD AND DESERT STORM

Volume 1: Study Report

The contributions made by Department of Defense (DoD) contractors to the success of the United States Department of the Army (DA) mission in Operations Desert Shield and Desert Storm were not well documented in the literature about that conflict. To construct a record of contractor support provided in the Persian Gulf theater during those operations, the Army Deputy Chief of Staff for Logistics commissioned this study. This study records the extent and location of contractor maintenance, supply, and transportation support; it identifies who the defense contractors were, what they did, when they did it, and the locations on the battlefield where they provided support. We make similar determinations for the DA civilians (DACs) in the theater of operations, (to the extent such information was available).

We positively identified 76 U.S. contractors that contributed to the effort, employing a total of 998 people. The support they provided was almost entirely in the areas of maintenance, technical assistance, equipment deprocessing, and equipment fielding. We also positively identified 22 major foreign contractors, employing over 2,900 people. Their support was almost entirely in the form of drivers, trucks, and buses. Neither the U.S. nor the foreign contractors provided any significant amount of supply support.

Contractor support began almost at the same time the first U.S. forces deployed to Southwest Asia. Contractor support reached full strength by mid-January 1991, just prior to the start of the air campaign. Few U.S. contractors were located with the forward deployed Army elements. Although some contractors performed their work with the Corps and Division support organizations, about 80 percent of them operated in the rear areas at locations such as the Theater Army Maintenance Program at Abu Dhabi, United Arab Emirates, and Dhahran, Saudi Arabia. Personnel were routinely deployed on a temporary basis from both the rear areas and military unit

locations to sites requiring assistance. A number operated independently as contact teams, covering almost the entire theater of operations. Their efforts ranged from single individuals employed as contractor field service representatives to organizations with scores of people.

Foreign contractor personnel operated primarily on the lines of communications, and transported personnel and material between the rear areas and the log bases. Some of the foreign contractors employed hundreds of people.

As in the case of U.S. contractors, the DA civilian support began almost at the same time as the first U.S. troops were deployed. Seven hundred seventy DACs were assigned to the theater to complete a specific task in support of the forces. Most of those civilians came from the Army Materiel Command's subordinate organizations. They performed functions in the areas of maintenance, supply, technical assistance, equipment modification, and the like: skills not routinely found in the military support units (e.g., depot maintenance and equipment fielding). Although they made major contributions to sustaining the force and their accomplishments were highly regarded, our study does not address the efforts of the Logistics Assistance Representatives (LARs) because they are normally stationed with the combat units and routinely accompany them during deployments.

Little evidence indicated that many contractor employees crossed over into Iraq or Kuwait with the combat elements. In total, 34 personnel from 10 contractor organizations accompanied Army forces into Iraq/Kuwait. The duration of the contractors' stay with the Army forces coincided with the duration of Operation Desert Storm; it was just over 3 days. Other than the LARs who routinely accompanied their assigned units, we identified no DACs who crossed the border with Army forces.

Senior logisticians whom we interviewed were almost unanimous in their observations that the contractors performed an essential and vital role on the battlefield especially in supporting the high-tech weapon systems. Many observed that in future conflicts, greater use of contractors and DACs can be expected; however, their roles would be undertaken primarily in the rear areas.

Accesson For

NITIS CATAL
DITUS TAB
Usuamous and
Justice days

By
District of the catal

CONTENTS

The second second second

	Aveda att. v and	
	Dist All Special	<u>Page</u>
Executive Summary		iii
Tables	A-1	vii
Figures		xi
Chapter 1. Introduction		1-1
Background		1-1
Chapter 2. Highlights of Contra-	ctor and Department	
	pport	2-1
Introduction		2-1
	vided	2-1
Number of Contracto		2 1
	ans	2-1
-	by Functional Area	2-2
• • • • • • • • • • • • • • • • • • •	pport Was Provided	2-3
	or and DAC Personnel	
During the Ground	d Offensive	
		2-4
	sed the Border into Iraq	
	ng the Ground Offensive	
(Phase Charlie) .		2-5
Contractor Effective	ness	2-6
		2-7
Historical Perspective .		2-7
Army Doctrine		2-8
Summary of Support		2-9
Organizational Assi	gnments	2-9
Summary of Contractor S	Support	2-11
Contractor Locations	s	2-13
	s	2-14
Summary of Department	t of the Army Civilian Support	2-18
DAC Locations		2-19
DAC Activities		2-19

CONTENTS (Continued)

		Page
Chapter 3.	Support Provided by Contractors and Department of the Army Civilians During Operations	
	Desert Shield and Desert Storm	3-1
Intr	oduction	3-1
Sun	mary of Phases	3-1
	Initial Phase — Early Deployment	0.1
	(8 August Through 31 October 1990)	3-1
	(1 November 1990 Through 15 January 1991)	3-13
	Phase Bravo - Movement of the Corps	
	(16 January Through 22 February 1991)	3-22
	Phase Charlie — Ground Offensive	0.05
Con	(23 February Through 28 February 1991)	3-35 3-45
Con	Clusions	3-40
Appendix A	Scope, Parameters, Methodology, Foreign Contractor	
	Research Thresholds, and Study Limitations	A-1 – A-5
Appendix B	. Key Army Individuals Interviewed and Documents	
• • • • • • • • • • • • • • • • • • • •	Researched	B-1 - B-5
Annandiy C	Summony of Contractors by A.m.y Motorial Command	
Appendix C	Summary of Contractors by Army Materiel Command Major Subordinate Commands and Other	
	Contracting Offices, by Phase	C-1 - C-6
	·	
Appendix D	O. Contractors and Department of the Army	D 1 D 21
	Civilians by Location	D-1 - D-51
Appendix E	. Personnel by Location	E-1 - E-17
Appendix F	Weapon Systems and End Items Supported	F-1 - F-7
		.
Appendix C	6. Observations	G-1 - G-6

TABLES

		Page
1-1.	Appendices D, E, F, and Volume 2 Subject Areas	1-2
2-1.	Contractor Support by Functional Area	2-3
2-2.	Contractor and DAC Personnel, by Service Area, Provided During Phase Charlie	2-4
2-3.	Contractor and DAC Personnel, by Location, Provided During Phase Charlie	2-6
2-4.	Contractor and DAC Support, by Logistics Phase	2-10
2-5.	U.S. Contractors Supporting ODS/S	2-13
2-6	Foreign Contractors Supporting ODS/S	2-14
2-7.	Summary of U.S. Contractor Personnel by Logistic Phase and by Function	2-14
2-8.	Summary of Foreign Contractors by Logistic Phase and by Function	2-15
2-9.	Summary of Contractor Locations in ODS/S	2-16
2-10.	Contractors Crossing the Border into Iraq/Kuwait During the 100-Hour War	2-17
2-11.	Major Army Organizations Providing DAC Personnel for In-Theater ODS/S Support	2-18
2-12.	Summary of DAC Organizations by Logistics Phase and by Function	2-19
2-13.	Summary of DAC Locations in ODS/S	2-20
3-1.	Initial Phase Summary	3-4
3-2.	U.S. Contractor Support During the Initial Phase	3-7

TABLES (Continued)

		Page
3-3.	Range of U.S. Contractor Personnel Provided During Initial Phase	3-8
3-4.	Foreign Contractor Support During Initial Phase	3-8
3-5.	Locations Where U.S. Contractors Provided Support	3-9
3-6.	Initial Phase - Number of Pases Where Functional Area Support Was Provided	3-11
3-7.	Alpha Phase Summary	3-14
3-8.	U.S. Contractor Support During the Alpha Phase	3-17
3 -9.	Range of U.S. Contractor Personnel Provided During Alpha Phase	3-18
3 ⋅10.	Foreign Contractor Support During Alpha Phase	3-19
3-11.	Locations Where U.S. Contractors Provided Support During Alpha Phase	3-20
3-12.	Locations Where Department of the Army Civilians Provided Support During Alpha Phase	3-21
3-13.	Maintenance, Supply, and Transportation Provided During Alpha Phase	3-23
3-14.	Bravo Phase Summary	3-27
3-15.	U.S. Contractor Support During the Bravo Phase	3-28
3-16.	Range of U.S. Contractor Personnel Provided During Bravo Phase	3-30
3-17.	Foreign Contractor Support During Bravo Phase	3-31
3-18.	Locations Where U.S. Contractors Provided Support During Bravo Phase	3-32
3 -19.	Locations Where Department of the Army Civilians Provided Support During Bravo Phase	3-33

TABLES (Continued)

		Page
3-20.	Maintenance, Supply, and Transportation Provided During Bravo Phase	3-34
3-21.	Charlie Phase Summary	3-39
3-22.	U.S. Contractor Support During the Charlie Phase	3-39
3 -23.	Range of U.S. Contractor Personnel Provided During Charlie Phase	3-41
3-24.	Foreign Contractor Support During Charlie Phase	3-42
3-2 5.	Locations Where U.S. Contractors Provided Support During Charlie Phase	3-43
3 -26.	Locations Where Department of the Army Civilians Provided Support During Charlie Phase	3-44
3-27.	Number of Cases Where Functional Area Support Was Provided During Charlie Phase	3-46

FIGURES

		Page
2-1.	Organizational Alignments - Contractor-Operated Supply, Maintenance, and Transportation Functions	2-11
2-2.	Organizational Alignments - Major DAC-Staffed Organizations	2-12
3-1.	Contractor Locations During Initial Phase	3-5
3-2.	Fixed Sites, Combat Units, and the Supporting Contractors During Alpha Phase	3-15
3-3.	Fixed Sites, Combat Units, and the Supporting Contractors During Bravo Phase	3-25
3-4.	Locations of the U.S. Contractors During Charlie Phase	3-37

CHAPTER 1

INTRODUCTION

BACKGROUND

This report documents the maintenance, supply, and transportation support that U.S. and foreign contractors and Department of Army civilians (DACs) provided to the U.S. Army in the Southwest Asia (SWA) theater of operations during Operation Desert Shield/Storm (ODS/S). It addresses the four logistical phases¹ that occurred during ODS/S: Initial, Alpha, Bravo, and Charlie. Logistics Assistance Representatives (LARs) are not included in the DAC figures because they are an ongoing integral part of the operational units with which they deployed. The report answers four questions posed by the Deputy Chief of Staff (Logistics) (U.S. Army) (DCSLOG):

- Where were they?
- Who were they?
- What did they do?
- When did they do it?

Volume 1 of this report, Study Report, is organized into three chapters and seven appendices. This chapter provides an introduction to the study. Chapter 2 provides an overview of the study results. Chapter 3 identifies who the contractors and DACs were, where they were located by the four major logistical phases of the operation, and the functions that they performed. It also provides the detailed data associated with our findings concerning the contractor and DAC contributions to logistics support of the ODS/S theater of operations.

¹The phases Alpha, Bravo, and Charlie are the logistics phases identified in the 22D Support Command's Operations Plans (OPLANs). The term "Initial" was created for use in this report to describe that period between 8 August 1990 and 31 October 1990. While they do not exactly match the tactical phases, they were selected to provide several benchmarks to assist in measuring the buildup of the contractor and DAC personnel.

This study's scope, parameters, methodology, research thresholds, and study limitations are detailed in Appendix A. We interviewed key Army personnel who served in the theater of operations. A substantial number of documents were reviewed. They are listed in Appendix B. Appendix C summarizes the contractors by AMC major subordinate commands and other contracting offices, by phase. Appendix D, "Contractors and Department of the Army Civilians by Location;" Appendix E "Personnel by Location;" Appendix F, "Weapon Systems and End Items Supported;" and Volume 2, Data Detail and Summaries, all provide the reader with an even greater level of detail than is presented in Chapters 1 through 3. References to these appendices are not specifically called out in the main discussion of each phase, but the reader should be aware of their existence. The subject areas addressed in Appendices D, E, and F and Volume 2 are marked by an "X" in Table 1-1. We obtained significant information from our interviews, literature search, and questionnaires that went beyond the original scope of the study; that information is presented as "Observations" in Appendix G as a service to our sponsor.

TABLE 1-1

APPENDICES D, E, F, AND VOLUME 2 SUBJECT AREAS

Subject area	Appendix D	Appendix E	Appendix F	Volume 2
Locations	×	×		Х
Contractors	X	İ		X
Functions performed	X	}		X
Permanent personnel	X	i x		X
Temporary personnel	×			×
Weapon system/end :tem		ļ	X	×
Other				Х

We address Army-related events in SWA during the period from 8 August 1990 through 28 February 1991. Included in the discussion are Army actions taken during the massive logistical buildup in SWA, the air war, and the ground war. We do not address activity taking place before 8 August 1990 or any other actions taken subsequent to 28 February 1991, since those periods were outside of our study charter.

We categorize the information gathered according to the four major logistical phases of the war, as defined by the 22nd Support Command, to permit a comparison

of the buildup of contractor and DAC support over the course of the war. The four phases, their titles, and their dates are as follows:

- INITIAL: Early Deployment 8 August through 31 October 1990
- ALPHA: Preparation and Positioning 1 November 1990 through 15 January 1991
- BRAVO: Movement of the Corps 16 January 1991 through 22 February 1991
- CHARLIE: Ground Offensive 23 February through 28 February 1991.

Key terms used in this report are as follows:

- Contractor: Each U.S. or foreign company providing support under a separate contract number. Under this definition, contractor X who provided support under contract numbers DXXX-90-0001 and DXXX-90-0002 was counted twice.
- U.S. contractors: Companies based in the United States.
- Foreign contractors: Companies not based in the United States or those employing non-U.S. companies to provide their support in theater. Four U.S. contractors were in this latter category. Each contractor let subcontracts to Saudi Arabian companies to provide the in-theater transportation support that was a portion of their overall contract with the U.S. Government.
- Fixed locations: Established geographical locations from which support was provided such as Dhahran, Saudi Arabia (SA). For ODS/S, fixed locations are generally thought of as echelons-above-corps (EAC) locations. In cases where the fixed location could not be identified, the location was listed as "in theater."
- Organizational locations: The operational units with which contractor and DAC personnel were permanently stationed and to which they provided support. In cases where the organizational location could not be specified, the location was listed as "other."
- Rear area: Geographical area encompassing a network of roads used to transport material and people between fixed locations and organizational locations.
- Functional areas: The types of support provided by contractors and DACs in the areas of maintenance, supply, and transportation.

- Permanent personnel: Personnel permanently located and working at a fixed or organizational location or rear area to provide support during a phase.
- Temporary personnel: Personnel who visited a fixed or organizational location during a phase to provide support. Examples are contractor field service representatives and contact teams. The frequency and duration of each visit varied depending upon the support requirement.

Our findings concerning U.S. contractor costs are discussed in Volume 2. The data that are available concerning costs are often inconsistent and are not easily compared. Further, these data cannot be readily associated with a particular logistic phase.

Volume 2 of this report, Data Detail and Summaries, contains the supporting information and data base detail concerning our findings; it is published separately.

The discussion that follows, categorized by logistic phase, includes a description of each phase from both a tactical and logistical perspective; we describe contractor and DAC locations on the battlefield, with supporting maps that represent the period and depict approximate battlefield locations.

CHAPTER 2

HIGHLIGHTS OF CONTRACTOR AND DEPARTMENT OF ARMY CIVILIAN SUPPORT

INTRODUCTION

This chapter, framed in a historical perspective, provides an overview of contractor and DAC support during ODS/S and discusses Army doctrine during wartime.

OVERVIEW OF SUPPORT PROVIDED

Contractor support began almost at the same time the first troops deployed on 8 August 1990. This was due, in part, to the political considerations that limited the number of troops the Commander in Chief (CINC), U.S. Central Command (CENTCOM), could initially deploy into the theater of operations. Because of the uncertainty associated with the threat of invasion by iraqi forces, the CINC made a deliberate decision to deviate from doctrine and policy and deploy only combat elements. That decision placed a large number of troops in the harsh desert environment without much logistical support of any type. To offset this void, a number of alternative sources of support were adopted, such as local and U.S. contractors. United States contractors were particularly valuable because their personnel did not count against the ceilings placed on the number of deployed troops and they could provide skills not obtainable locally. Additionally, in many instances, U.S. contractors were able to arrange quicker passage to SWA than could their Army active duty personnel counterparts.

Number of Contractors and Department of the Army Civilians

By the time the ground war ended on 28 February 1991, 998 personnel from 76 U.S. contractors had served in the theater. The AMC major subordinate commands (MSCs) contracted for 75 of those contractors — the Aviation and Troop Support Command (ATCOM) providing the largest number (27) and the Army Armament, Munitions and Chemical Command (AMCCOM) providing the smallest (5). The remaining U.S. contractor was provided by Fort Hood. The largest number

of contractors serving during any logistical phase of ODS/S was 71 for the Bravo and Charlie Phase(s), combined.

During these phases, 22 foreign contractors provided support to the U.S. Army. Eighteen of these foreign contractors were Saudi Arabian firms contracted by the in-theater Army Central Command (ARCENT) contracting offices. The remaining four contractors are U.S. contractors that we have counted as foreign contractors because each of them let subcontracts to Saudi Arabian companies for in-theater transportation support, which was a portion of their overall contract with the U.S. Government. The contracting office for these four U.S. companies was the Headquarters, Military Sealift Command (HQ MSC). During the Alpha phase, the largest number of foreign contractors (20) provided support. A complete list of all U.S. contractors is in Table 2-5; all foreign contractors are listed in Table 2-6.

Contractor Support by Functional Area

All but two of the U.S. contractors provided maintenance support during ODS/S. Refer to Table 2-1. That support consisted of organizational location through depot level maintenance, Aviation Unit Maintenance (AVUM) and Aviation Intermediate Maintenance (AVIM), modifications, deprocessing, training, and technical support. Also, over 33 percent of the maintenance contractors provided supply support and almost 8 percent provided transportation support. Supply support consisted of Class III, Class IV, Class VII, and Class IX1 management, fielding, training, installation, and technical support. Mode and terminal operations were the only transportation areas where support was provided.

For foreign contractors, support focused on transportation, with over 86 percent of all the contractors providing truck drivers, bus drivers, or both. The limited amount of maintenance support provided by foreign contractors was restricted to modifications, training, and technical support; supply support included only repair parts.

The DACs provided maintenance support in the areas of direct support through depot maintenance, deprocessing, modifications, and technical support. Supply

⁴Army classes of supply 1 + Subsistence, II + Clothing and Textiles, III + Petroleum, Oii, and Lubricants, IV + Fortification and Barrier Items, V + Ammunition, VI + Personal Demand Items, VII + Major Items, VIII + Medical Items, IX + Repair Parts, and X + Nonmilitary Materiel

TABLE 2-1

CONTRACTOR SUPPORT BY FUNCTIONAL AREA

Contractor	Total number of contractors	Maintenance	Supply	Transportation
United States	76	74	25	6
Foreign	22	3	1	19

Note: Numbers are not additive. Some contractors provide more than one type of function, hence, the total number of contractor's figures do not directly reflect the actual sum of the figures from the three functional area category columns.

support was limited to class IX management, fielding, training, and technical support.

Locations Where Support Was Provided

Contractor and DAC support occurred from one of three different locations: fixed, organizational, or rear areas. Fixed refers to support provided from an established geographical location. During ODS/S, fixed locations were identified mostly as locations at echelons above corps level. Organizational locations were military unit locations where contractor personnel were permanently stationed and provided support. For purposes of this report, rear areas are limited to describing the transportation of materiel and people between fixed and organizational locations.

Support was provided from 15 fixed locations. Of those 15 locations, all but 1 were located in SA. The exception was the location of Theater Aviation Maintenance Program (TAMP)-base in Abu Dhabi, United Arab Emirates (UAE). Of the 14 locations in Saudi Arabia, 6 were established by the Army during ODS/S. Those were the logistics bases. The location "Theater Army Area" refers to any fixed location not otherwise covered.

The fixed locations were the following:

Abu Dhabi, UAE Ad Dammam, SA Al Jubail, SA Dhahran, SA Hafir Al Batin, SA King Fahd AFB, SA Log base Alpha Log base Bravo Log base Bastogne Log base Charlie

Log base Echo

King Khalid Military City (KKMC), SA

1st Armored Division

Riyadh, SA Theater Army Area

24th Infantry Division

Additionally, support was provided from 20 major organizational locations. These organizational locations were as follows:

13t Hilliored Division	2401 111141101 5 21 1131011
1st Cavalry Division	3d Armored Cavalry Regiment
1st Infantry Division	3d Armored Division
11th Air Defense Artillery Brigade	35th Signal Brigade
12th Aviation Brigade	82d Airborne Division
101st Airhanna Division	TF 8 43/32d Air Defence Command

101st Airborne Division TF 8-43/32d Air Defense Command
124th Military Intelligence Battalion
142d Field Artillery Brigade VII Corps

2d Armored Cavalry Division XVIII Corps
2d Armored Division Other Units

Number of Contractor and DAC Personnel During the Ground Offensive (Phase Charlie)

During the ground offensive (i.e., logistical Phase Charlie), the largest number of DACs and contractor personnel (4,664 people) were serving in the theater. The U.S. contractors provided more than 20 percent of this total; DACs more than 16 percent; and foreign contractors provided the remainder, almost 63 percent of the total. The consensus of the senior Army logisticians interviewed was that from a logistics perspective, this was a quartermaster's and transporter's war. Table 2-2 shows that the array of contractor and DAC personnel by the three functional areas is consistent with this view. Over 63 percent of all personnel were involved in the transportation function, provided almost exclusively by bus and truck drivers.

TABLE 2-2

CONTRACTOR AND DAC PERSONNEL, BY SERVICE AREA, PROVIDED DURING PHASE CHARLIE

Personnel	Maintenance	Supply	Transportation	Total
じ.S. contractors	795	159	15	969
Foreign contractors	0	0	2,925	2,925
DAC personnel	472	298	0	770
Total	1,267	457	2,940	4,664

A review of the contracts with the foreign contractors indicates that about 30 percent more drivers were contracted for than were actually provided (the contractors were paid only for those they provided). This was due to the frequent inability of the foreign contractors to provide either the bus or truck for the driver.

United States contractor support was divided among the functions of maintenance (82 percent), supply (16.5 percent), and transportation (1.5 percent). Foreign contractor support was almost exclusively in the area of transportation. The DAC operations were split between maintenance (about 60 percent) and supply (about 40 percent).

Of all contractor personnel, only 4.6 percent were located with organizational elements. The majority of personnel (33.5 percent) were stationed at the fixed locations and in the rear areas (62 percent). (See Table 2-3.) Most of those personnel provided transportation support and were of foreign (i.e., non-U.S.) origin. The small number of personnel found stationed at organizational locations is consistent with the information received from the various Corps Support Command (COSCOM) and Division Support Command (DISCOM) commanders; they encountered contractor personnel infrequently, and they reported having very little contractor support on hand. Contractor personnel stationed at organizational locations were in violation of the Army policy that restricts contractor personnel from being stationed permanently forward of the Corps' rear boundary.

Personnel serving in fixed locations were almost evenly split between U.S. contractors and DACs. United States contractors provided 88 percent of all of the personnel serving at organizational locations.

Personnel Who Crossed the Border into Iraq and Kuwait During the Ground Offensive (Phase Charlie)

We identified 34 personnel who accompanied units into Iraq and Kuwait during the ground war. This represents less than 1 percent of all contractor and DAC personnel who were serving at the time. The personnel who crossed were exclusively from 10 U.S. contractors and were colocated with 16 different Army organizations. Those personnel supported the Bradley Fighting Vehicle, M1 Tank, M1A1 Tank, mobile subscriber equipment (MSE), OH-58D Helicopter, PATRIOT Missile, and common hardware and software. Their average stay was 90 hours, which is only

TABLE 2-3

CONTRACTOR AND DAC PERSONNEL, BY LOC TION, PROVIDED DURING PHASE CHARLIE

Contractor	Fixed	Organizational	Rear area	Total
United States	784	185	0	969
Foreign	0	25	2,900	2,925
DACs	770	0	0	770
Total	1,554	210	2,900	4,664

slightly less than the 100 hours of the ground war. We identified no foreign contractors who accompanied units into Kuwait or Iraq.

Contractor Effectiveness

Ascertaining the effectiveness of U.S. contractor operations during ODS/S became very subjective at best. Little hard information, such as contractor performance reports or other data, was found. However, as a whole, the effectiveness of U.S. contractors and their personnel was highly regarded by all Army personnel we interviewed. As expected under the conditions, a small number of contractor personnel did leave the theater or were asked to leave because of performance difficulties. It was reported that many of the U.S. contractor personnel were Army veterans; that experience most likely greatly assisted them in adapting to the rigors imposed during ODS/S and provided them with a wealth of information concerning the systems and functions supported.

The effectiveness of the foreign contractors was not rated as high for three reasons. First, the drivers were not always reliable; second, much of their equipment was well worn; and third, safety regulations were often violated and impossible to enforce.

Judgments about the DAC's effectiveness in providing in-theater support were also subjective. On a whole, their effectiveness was highly regarded by the Army personnel we interviewed. A group of DAC personnel did leave the theater for safety reasons, but that is not surprising during combat situations.

Contractor Costs

The information required to identify or estimate the cost of foreign contractors was not available. The information required to identify or estimate the cost for DACs was not available. The U.S. contracts were in many instances modifications or extensions of existing contracts. Therefore, much of the contractors' cost information was not obtainable. Much of the information received is incomplete; it does not contain the integrity necessary to make any valid calculations. However, we present the data we did collect in Volume 2, Chapter 2.

HISTORICAL PERSPECTIVE

A paper prepared by the U.S. Army Center of Military History provides a historical perspective about contractors supporting the Army during wartime. It reviews contractor support from the Revolutionary War throthe Vietnam War; it concludes that

Civilian contracted services in wartime have been significant, extensive, and diverse. Such services have generally concentrated in the support functions of transportation, signal, engineer, maintenance, and medical.

In transportation there has been a consistent pattern in the use of civilians in all wars.

The maintenance function has increasingly relied on contracted civilians to provide technical expertise in the 20th century. As Army equipment has grown more sophisticated, contracted technicians have been employed in direct support maintenance activities as well as depot-level maintenance.

The scope of employment of civilians in support of field armies is significant and consistent over the course of U.S. wars. The pattern that emerges from the 19th century shows a ratio of one civilian supporting six soldiers (1:6). In the 20th century, the pattern is less clear, but if one takes the largest total war, World War II, and the most recent limited war, Vietnam, the ratios are very close (1:7 and 1:6), respectively. 2

Thus, the use of contractors to support combat operations in a war zone is not new; it is a subject that has received a great deal of attention in the past. The paper

²Epley, William W. Contracting in War. Civilian Combat Support of Field Armies, U.S. Army Center of Military History, Washington, D.C. (Undated)

demonstrates that ample precedence exists for the extensive employment of contractors during ODS/S.

ARMY DOCTRINE

Army policy and doctrine provides guidance for the use of contractors and DACs on the battlefield. Applicable references and key statements on policy and doctrine follow:

Army Regulation 700-9, Policies of the Army Logistic System, states the following:

In the overseas theater of operations -

- (1) Maintenance support forward of the corps rear boundary normally will be performed by military personnel.
- (2) Nonmilitary maintenance support within the corps area will usually be limited to short-term tasks. Tasks may be for initial fielding of equipment, or to overcome specific deficiencies affecting the mission readiness of a unit. These tasks are the type of tasks that can only be performed by contractor, DA civilians, or local nationals [including host nation support (HNS)].
- (3) Behind the corps rear boundary, reasonably assured HNS and civilian maintenance support [as listed in (2) above may work out of semi-fixed facilities. This may be acceptable as a prudent risk to supplement table(s) of organization and equipment (TOE) maintenance.

... enough DoD-owned transportation resources will be maintained and operated to supplement available commercial transportation for emergency and wartime needs. Reasonably assured HNS capability will be complemented with DoD-owned transportation resources.

When new major items or weapon systems are fielded, consolidated or package shipment of material will be considered to ensure efficient fielding and avoid reduction of the user's readiness posture. "Total package/unit material fielding" will be the standard method used for AMC-fielded major items/weapon systems. Material will be distributed directly from production or vendor to the customer to reduce transportation and handling costs

Field Manual 100-10, Combat Service Support:

The Logistics Civil Augmentation Program (LOGCAP) covers the planning process for the use of civilian contractors during wartime situations much as we did during the Vietnam War for transportation, construction, and a

variety of other services. The objective is to plan for the use of civilian contractors to perform selected services in wartime to augment Army forces – either U.S., or host country, or third country. Using civilian contractors in a theater of operations releases military units for other missions or fills shortfalls.

civilian staff members who have signed agreements to remain in place in overseas activities in wartime. They will perform critical functions especially in the COMMZ in supervising or working in intermediate (GS) maintenance, identifying and solving weapon system problems (AMC logistics assistance force), and continuing their essential peacetime Combat Service Support (CSS) functions.

Field Manual 700-80, Logistics:

Contract maintenance plays a significant role in fulfilling the Army's maintenance mission. It is used particularly to meet peak loads ... use of commercial facilities also underwrites the Army's capacity to meet the greater maintenance demands which would result from partial or total mobilization.

Thus, it is clear that there are both Army policies and precedents to utilize both contractors and DACs to provide logistic support on the battlefield. The question remains: how much and what type of functions can be, and should be, supported in this manner? While a complete resolution of these issues is beyond the scope of this study, this report may aid in answering those questions.

SUMMARY OF SUPPORT

Table 2-4 depicts the number of contractors, contractor personnel (U.S. and foreign), and DACs employed, by logistics phase. Of course, most contractors provided support during all four phases. Recall that the total number of U.S. contractors providing support at some time during the later phases was 76 (see Table 2-1). Table 2-4 emphasizes the steady growth and comprehensiveness of contractor and DAC support over the phases of ODS/S.

Organizational Assignments

Assignment of the contractor organizations to the military commands in ARCENT was complex. A total of 98 separate contracts were awarded and administered by eight different contracting commands. Appendix C is a listing of contractors by AMC MSC and other organizations contracting for support. After the contracts were negotiated and awarded, the U.S. contractors reported to the senior

TABLE 2-4

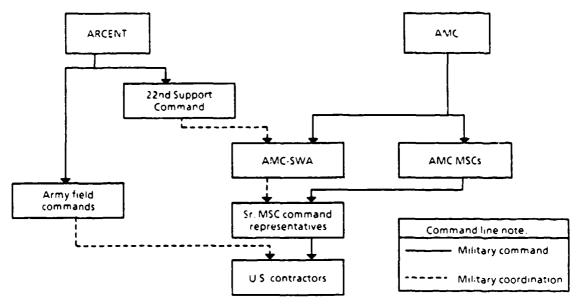
CONTRACTOR AND DAC SUPPORT, BY LOGISTICS PHASE

Personnel Phases	Initial 8 Aug 90 - 31 Oct 90	Alpha 1 Nov 90 - 15 (an 91	Bravo 16 Jan 91 - 22 Feb 91	Charlie 23 Feb 91 - 28 Feb 91
United States				
Contractors	41	67	71	71
Personnel	515	799	945	969
Fore:gn				
Contractors	10	20	19	18
Personnel	883	2,465	2,937	2,925
DACs				
Contractors	NA	NA	NA	NA
Personnel	30	461	767	770
Totals				
Contractors	51	87	90	89
Personnel	1,428	3,725	4,649	4,664

Note: NA = not applicable

MSC representative attached to AMC-SWA, which was stationed with the 22nd Support Command (see Figure 2-1). However, they responded to, and were physically housed at, numerous fixed and organizational locations. A number of these contractors simply continued to support the units that they had been supporting before ODS/S. Most of the foreign truck and bus contractors were under the control of the 7th Transportation Group. Their equipment was usually allocated, on a daily or some other periodic basis, to requesting organizations. Figure 2-1 depicts the U.S. contractor organizational relationships.

The DAC organizational assignments under ARCENT were fairly straightforward since the majority of the DAC personnel were AMC employees and responded to the Army Support group (ASG)-SWA. The ASG-SWA structure did not exist prior to the war. During the operation, almost 75 percent of the DACs in the theater were assigned to this organization. It maintained a close relationship with the 22nd



Notes: ARCENT = U.S. Army Central Command; AMC = Army Materiel Command. AMC-SWA = Army Materiel Command. Southwest As a, MSC = Major Subordinate Command.

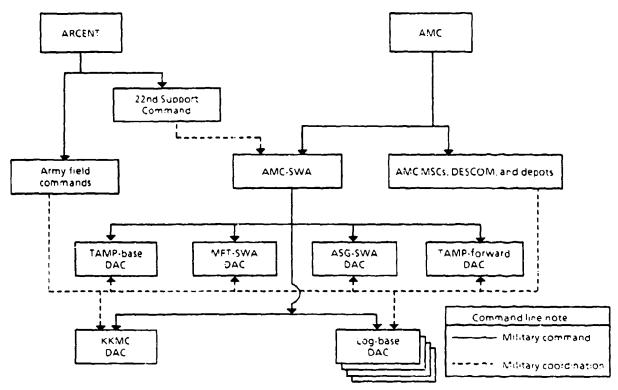
FIG. 2-1. ORGANIZATIONAL ALIGNMENTS - CONTRACTOR-OPERATED SUPPLY, MAINTENANCE, AND TRANSPORTATION FUNCTIONS

Support Command. Therefore, both local command and technical direction came from the same organization. However, the DAC-staffed organizations maintained strong technical and logistical ties with their sponsoring CONUS activities and with the Depot Systems Command (DESCOM). These organizational arrangements allowed AMC to provide in-theater support rapidly and effectively (see Figure 2-2).

SUMMARY OF CONTRACTOR SUPPORT

In this section, we detail the support provided at the various locations on the battlefield. In the August to October time frame, contractor support was developing in the theater. At the end of the initial phase, 41 U.S. contractors employing a total of 515 personnel were in place. Ten foreign contractors employing 883 personnel were also being used. By the Charlie Phase, the number of contractors and contractor personnel supporting Army forces in theater had reached its peak. Table 2-5 lists U.S. contractors. Table 2-6 lists foreign contractors.

A total of 76 U.S. contractors employing 998 personnel supported the operations. When the ground offensive began, 71 U.S. contractors employing 969 personnel and 18 (of 22) foreign contractors employing 2,925 personnel were in



Notes: ARCENT = U.S. Army Central Command; AMC = Army Materiel Command, SWA = Southwest Asia; TAMP = Theater Aviation Maintenance Program; MFT = Materiel Fielding Team; ASG = Army Support Group; DAC = Department of the Army Civilian, DESCOM = Depot Systems Command; MSC = Major Subordinate Command; King Khalid Military City

FIG. 2-2. ORGANIZATIONAL ALIGNMENTS - MAJOR DAC-STAFFED ORGANIZATIONS

use. As the ground offensive began, 3,894 people from 89 contractor companies were involved. Seventy-five percent of the U.S. contractors provided 9 or fewer personnel; only 4 contractors provided more than 50 personnel.

Summaries of the composition of contractor operations are provided in Tables 2-7 and 2-8. Tables 2-4 and 2-7 show U.S. contractors by logistic phase, number of contractors, and the supported functions of maintenance, supply, and transportation. Table 2-8 presents the same data for foreign contractors. These two tables highlight the significance of U.S. contractor support in the maintenance function and the equally strong foreign support to the transportation mission. Appendix C summarizes the U.S. contractors by AMC and MSC and other contracting offices by logistic phase.

TABLE 2-5

U.S. CONTRACTORS SUPPORTING ODS/S

Contractors

Aeromaritime Mediterranean Corporation (2) Allison Gas Turbine Division - GMC (2) AR!NC Research Corporation (3) Automated Research Systems (5) AYDIN Corporation (3) Beech Aerospace Service, Inc. (2) Bell Helicopter Textron, Inc. (2) Boeing Helicopters (2) Brown International Corporation (4) CCL Inc (3) Chem-Nuclear Systems, Inc. (1) Cincinnati Electronics Corporation (3) COBRO Corporation (2) DynCorp (2) Electronics & Space Corporation (5) Everett Equipment, inc. (5) FMC Corporation (5) GE-ASD (5) GE Defense Systems Division (5) General Dynamics Land Systems Division (1) General Dynamics Land Systems Division (5) General Dynamics Services Company (5; General Dynamics Services Company (5) General Electric Aerospace (3) General Electric Company (2) General Instruments (2) GTE Government Systems Corporation (3) GTE Government Systems Corporation (3) GTE Government Systems Corporation (3) Honeywell (2) Honeywell Military Avionics Division (1) Howel (2) Hughes (2) Hughes Aircraft Company (1) Hughes Aircraft Company (4) Hughes Aircraft Company (5) Johnson Controls World Services, Inc. (2)

Kaman Sciences Corporation (5) Laguna Industries, Inc. (3) Librascope (3) Litton Data Systems (3) Lockheed Support Systems, Inc. (6) Lockheed Support Systems, Inc. (2) Loral (3) Loral Vought Systems, inc. (4) Mack Trucks, Inc. (5) ManTech Field Engineering Corporation (3) Martin Marietta Corporation (2) McDonnell Douglas Electronic Systems Company (4) McDonneil Douglas Electronic Systems Company (4) McDonnell Douglas Hell copter Company (2) McDonnell Douglas Helicopter Company (2) MILTOPE Corporation (3) Motoroia Inc (3) Northrop (2) Oshkosh Truck Corporation (5) Pentastar Electronics, Inc. (1) Petroleum Helicopter Company (2) Potomac Research, Inc. (3) Raytheon Corporation Missile Systems Division (4) Raytheon Corporation Missile Systems Division .4) Raytheon Corporation Missile Systems Division (4) Rockwell International Corporation (3) Rockwell Tactical Systems Division (4) Sanders (2) Scientific Atlantic (2) SERV-AIR, Inc (3) Snorts Brothers (2) Sikorsky Aircraft Division (2) Sikorsky Interilational Products, Inc. (2) Task Research (2) *eledyne Continental Motors (5): Textron Lycoming (5) *RI-EX Tower Corporation (3) Willbros Butler Engineers, inc. (*)

Note: Numbers after the intractors names and rate the awarding contracting office (i.e., 31) = AMCCOM, (3) = AFCOM, (3) = CECOM, (4) = MICOM, (5) = TACOM, and (h) = First Hood. Several of these contractors were awarded more than one contract of solither names appear for each separate contract awarded.

Contractor Locations

Principal locations of contractors were as shown in Table 2-9.

TABLE 2-6
FOREIGN CONTRACTORS SUPPORTING ODS/S

Contractors			
Abdullah A.M. Ai-Khodari Est. (2)	Alı Saleh Alamri Est. (2)		
Adil Al-Misehal (2)	American President Lines (3)		
Ahmad N. Albinali & Sons (2)	Bandar International (2)		
Al Askar Trading Est. (2)	Dallah Transport Co. (2)		
Al Magam Contracting (2)	Farrell Lines (3)		
A! Matrood Trading Est. (2)	Gulf Bridge Est. (2)		
Al-Masarah LTD (2)	Humoud ibrahım Al-ziab Co. LTD (2)		
Ai-Masarah LTD(2)	ıbrahim Al-Quatani Est. (2)		
Al-Mawla General Services (2)	Lykes Lines (3)		
Al Snamrany Metal Industries (2)	Sealand (3)		
AI-Zhick Rullo Est. (2)	Thyssen Henschel (1)		

Note: Numbers after the contractors' names indicate the awarding contracting office; i.e., (1) = AMCCOM; (2) = ARCENT, and (3) = HQ MSC

TABLE 2-7
SUMMARY OF U.S. CONTRACTOR PERSONNEL BY LOGISTIC PHASE AND BY FUNCTION

	Number of U.S. contractors				
Phase	Fotal number of contractors	Maintenance	Supply	Transportation	
ימוטורי	41	41	12	4	
Alpha	67	63	22	6	
Bravo	71	70	23	6	
Charlie	71	70	23	6	

Nutc. Numbers are not additive, some contractors provide more than one type of function, hence, the total figures do not idizectly reflect the activities of fine highes from the three service category columns.

Contractor Activities

Early in the operation, maintenance support for 42 weapon systems and major end items was provided. By the end of the operation, 72 weapon systems and major

TABLE 2-8

SUMMARY OF FOREIGN CONTRACTORS BY LOGISTIC PHASE AND BY FUNCTION

		Number of foreign contractors					
Phase	Total number of contractors	Maintenance	Supply	Transportation			
Initial	10	1	1	9			
Alpha	20	3	1	17			
Bravo	19	1	0	18			
Charlie	18	0	0	18			
Charile	18	U		10			

Note: Numbers are not additive. Some contractors provide more than one type of function; hence, the total figures do not directly reflect the actual sum of the figures from the three service category columns.

end items were being supported. (Weapon systems and major end items supported by the contractors in the theater of operations are listed in Appendix F.) Different levels and combinations of levels of maintenance support were available for individual systems; however, the predominant type of maintenance support provided was technical support and training, although the full range of maintenance support was provided.

Foreign contractor support was almost entirely to provide for contracted trucks and buses with drivers, along with supporting maintenance, translation, and scheduling services. At the height of the operation, 13 contractors provided over 2,900 trucks, buses, and their drivers. The trucks and buses were primarily used to move cargo, equipment, and personnel at echelons above the division level. The vehicles operated forward to the log bases. We found only two contractors exclusively providing supply support, using a maximum of about eight personnel. The type of supply support provided by U.S contractors was primarily Class IX, principally for systems support, fielding, and technical support.

Most U.S. contractors were located at EAC. The contract effort in corps/division rear areas was achieved principally through Contractor Field Service Representatives (CFSRs) or contact teams. Probably because of their relatively small numbers and the fact that they dressed in the same attire as the other civilians, the U.S. contractors were not highly visible to logistic commanders at the corps level and

TABLE 2-9
SUMMARY OF CONTRACTOR LOCATIONS IN ODS/S

Fixed locations			
Abu Dhabi, UAE TAMP-base KKMC, SA CECOM Forward Rainbow SRA #2 Ad Dammam, SA MFT-SA TACMIS RSC Others Al Jubail, SA Dhahran, SA AMC-SWA CECOM SRA Rainbow SRA #1 TAMP-Forward	King Fahd AFB, SA Riyadh, SA Log base Alpha Log base Bastogne Log base Bravo Log base Charlie Log base Echo Theater Army Area Other		
	ional locations		
1st Armored Division 1st Cavalry Division 1st Infantry Division 2d Armored Cavalry Regiment 3d Armored Division 3d Armored Cavalry Regiment TF 8-43/32d ADCOM 11th Air Defense Artillery Brigade	24th Infantry Division (M) 35th Signal Brigade 82d Airborne Division 101st Airborne Division (AA) III Corps Elements VII Corps XVIII Airborne Corps Other		

Note: ADCOM = Ar Defense Command

below. Those commanders reported little or no contact with the U.S. or foreign contractors.

Thirty-six personnel working through 10 contracts crossed into Iraq-Kuwait with the combat elements. Table 2-10 identifies the contractors who crossed the border, their organizations or locations, the number of personnel involved, the

TABLE 2-10

CONTRACTORS CROSSING THE BORDER INTO IRAQ/KUWAIT DURING THE 100-HOUR WAR

Contractor	Organi- zation:location	Personnel	Duration	Weapon system or hardware: software
General Dynamics Land Systems Division	1st AD	1	3 days	M1, M1A1 tank
,	1st Cavairy	1	All days	
	24th ID	1	All days	
	3rd AD	1	All days	
	3rd ACR	1	3 days	
	USMC	1	Ali days	
McDonnell Douglas Electronic Systems Co	82nd ABD	1	All days	OH-580 MMS
MILTOPE Corporation	1st Cavalry	2	2 days	Common hardware/ software
Missile Division	!raq:Kuwait	2	3 days	PATRIOT
Raytheon Corporation ^a	11th ADA BDE	1	3 days	PATRIOT
Missile Systems O-vision	Irag/Kuwait	2	3 days	
© C Corporation	1st CAV	1	All days	Bradley fighting vehicle
	1st ID	1	Alldays	
	2nd AD	1	All days	
	2nd ACR	1	Alldays	
	24th ID	1	Alldays	
	3rd ACR	1	All days	
GTE Government Systems Corporation	1st CAV	3	All days	MSE
	2nd AD	1	All days	
	3rd AD	3	Alldays	
	III Corps Elements	1	Alldays	
	USMC	1	All days	
GTE Government Systems Corporation	Kuwait City	1	2 days	TRITAC Switches
	Iraq	1	1 day	
*eledyne Continental Motor	VII Corps	1	All days	ALDS 1790
	XVIII ABC	1	Alldays	Diesel engines
Textron Lycoming	1st AD	1	Aildays	M1, M1A1 tank
	3rd ACR	1	All days	Gasturbine
	USMC	1	A!! days	
10 contracts total	16 different organizations locations	36	3.75 days average	√ariOus

Notes: AD = Armored Division (D = infaritry Division) ACR = Ard pred Cavarry Regiment, LISMC = United States Marine Corps: ABD = Airborne Division (MMS = Mast Mounted Site, BDE = Brigade, CAV = Cavarry, ABC = Airborne Corps

Il Raytheon Corporation provided support under two contracts.

duration of their stay, and the weapon system they were supporting in the cross-border operation.

SUMMARY OF DEPARTMENT OF THE ARMY CIVILIAN SUPPORT

The DAC support began almost at the same time the first U.S. troops deployed to SWA; the DAC personnel reached full strength by mid-January 1991. Most of the DACs came from AMC organizations; however, a few came from installation organizations. Unlike the contractor buildup, DAC personnel were not built up early and rapidly.

By October, only 30 DAC personnel had arrived in-theater, while 515 U.S. contractor and 883 foreign contractor personnel were employed during the same time. However, by the time the ground offensive had begun, the number of DACs in-theater had topped out at 770. A total of 36 organizations, both within and outside AMC, assigned DAC personnel to the campaign. Table 2-11 shows the major Army organizations that provided DAC personnel. The principal source of personnel was the AMC depots.

TABLE 2-11 MAJOR ARMY ORGANIZATIONS PROVIDING DAC PERSONNEL FOR IN-THEATER ODS/S SUPPORT

Aberdeen Proving Ground (APG), MD Armament, Munitions and Chemical Command (AMCCOM), IL Army Materiel Command-Europe (AMC-EUR), Germany Anniston Army Depot (ANAD) AL Communications-Electronics Command (CECOM), NJ Corps of Engineers (COE) Washington, DC Corpus Christi Army Depot (CCAD), TX Depot Systems Command (DESCOM) PA Defense Distribution Region, East (DDRE), PA Dugway Proving Grounds (DPG), UT -ort Carson CO Fortiee VA Fort Lewis, NA Headquarters Army Materiel Command (HGAMC), vA. Letterkenny Army Depot (LEAD), PA

Lexington-Blue Grass Depot Activity (LBDA), KY Mainz Army Depot (MZAD), Germany Materie' Readiness Support Activity (MRSA), KY Missile Command (MICOM), AL Pine Bluff Arsenal (PBA), AR Pueb-o Depot Activity (PUDA), U* Red River Army Depot (RRAD), TX Sacramento Army Depot (SAAD), CA Seneca Army Depot (SEAD), NY Sierra Army Depot (S'AD), CA Systems Integration and Management Activity (SIMA), MO Tank-Automotive Command (TACOM), MI Tooele Army Depot (TEAD) UT Test and Evaluation Command (TECOM), MD. Tobyhanna Army Depot (TOAD: PA Yuma Proving Grounds (YPG): AZ

Table 2-12 summarizes the number of DAC operations by phase; and the supported functions; maintenance, supply, and transportation. On one hand, this table highlights the significance of the DAC maintenance and supply support, and on the other hand, the absence of transportation support. Appendices D and E are a detailed summary of DAC fixed, and organizational locations (both permanent and temporary assignment), by logistics phase and by function.

TABLE 2-12

SUMMARY OF DAC ORGANIZATIONS BY LOGISTICS PHASE AND BY FUNCTION

Number of DACs				
Total number DAC locations	Maintenance	Supply	Transportation	
3	3	3	0	
9	9	8	0	
12	12	11	0	
11	11	11	0	
	DAC locations 3 9 12	Total number DAC locations Maintenance 3 3 9 9 12 12	Total number DAC locations Maintenance Supply 3 3 3 3 9 9 8 12 12 11	

Note: Numbers are not additive. Some DAC locations provide more than one type of function; hence, the total figures do not directly reflect the actual sum of the figures from the three service category columns.

DAC Locations

Principal locations of the DACs were as shown in Table 2-13.

DAC Activities

Early in the operation, DAC provided maintenance support for 18 weapon systems and major end items. By the end of the operation, 21 systems were being supported by in-theater DAC personnel. A complete list of all systems supported by DACs and contractors, by phase, is provided in Appendix F. The DAC organizations in the Persian Gulf theater were staffed to provide different levels and combinations of levels of maintenance support; however, the most prevalent type of support was general support (GS) and depot maintenance.

The DAC-staffed organizations performed major supply support missions. Approximately 40 percent of the assigned DAC personnel performed a supply function. That supply support was primarily Class IX, repair parts supply, for the

TABLE 2-13
SUMMARY OF DAC LOCATIONS IN ODS/S

Fixed locations				
Abu Dhabi, UAE TAMP-base Ad Dammam, SA MFT-SA ASG-SWA Dhahran, SA AMC-SWA	KKMC, SA Log base Alpha Log base Bravo Log base Bastogne Log base Charlie			
TAMP-Forward	Log base Delta Log base Echo			
	zational locations (M) (only during Alpha Phase)			

systems being supported and support of weapon systems fielding. The DACs provided limited supply support of Class IX directly to operational units.

Initially, the DAC effort was conducted at TAMP-base in Abu Dhabi, UAE; at ASG-SWA in Ad Dammam, SA; and at TAMP-Forward in Dhahran, SA. By January 1991, DACs were still primarily at these same sites, but staffing two additional commands, the MFT-SA in Ad Dammam and the AMC-SWA in Dhahran. Small DAC contingents had also been established at KKMC, SA and at six log bases. In general, all of the DACs located at echelons above corps level were in fixed locations.

As the scope and intensity of the operations increased, the number of DACs at the fixed locations increased. Throughout the campaign, the DACs were located at the fixed locations and had limited contact with the green-suit field Army. A small number of the DAC personnel were temporarily assigned away from their fixed locations. Other than LARs, there was only a small DAC effort in the corps/division rear areas. We found no evidence to suggest that any of these DAC personnel crossed the border during the ground campaign.

CHAPTER 3

SUPPORT PROVIDED BY CONTRACTORS AND DEPARTMENT OF THE ARMY CIVILIANS DURING OPERATIONS DESERT SHIELD AND DESERT STORM

INTRODUCTION

Along with three associated appendices and Volume 2, this chapter presents the detailed results of our study. This material shows the scope and depth of contractor and DAC support in the theater of operations during ODS/S. This chapter answers four questions concerning contractors and DACs: "Who were the contractors and DACs, where were they, what did they do in ODS/S, and when were they there?"

The remaining portion of this chapter is divided into four sections, one for each of the logistical phases — Initial, Alpha, Bravo, and Charlie — that occurred during ODS/S. Each section is further divided into five subsections where the detailed information for that logistical phase is presented. These subsections are as follows:

- Description
- Phase Summary
- Who Provided Support?
- Where Was Support Provided?
- What Support Was Provided?

In each subsection, the support furnished by U.S. contractors, foreign contractors, and DACs is examined.

SUMMARY OF PHASES

Initial Phase - Early Deployment (8 August Through 31 October 1990)

Description

In response to the 2 August 1990 invasion of Kuwait by Iraq, the President of the United States, on 6 August 1990, executed Operation Desert Shield, deploying U.S. Military Forces to the Persian Gulf region. The first contingent of soldiers

arrived in Saudi Arabia by airlift on 8 August. During the initial phase, the following major Army combat units were deployed in the Persian Gulf theater:

- HQ, 3d U.S. Army (ARCENT)
- HQ, XVIII Airborne Corps
- 1st Cavalry Division
- 24th Infantry Division
- 101st Airborne Division
- 82d Airborne Division
- 3d Armored Cavalry Regiment
- 11th Air Defense Artillery Brigade
- 197th Infantry Brigade.

These major combat units were initially positioned in Northeast Saudi Arabia, in an area, north to south, stretching approximately 50 to 250 kilometers from Dhahran. The objective of these units was to resist any movement of Iraqi ground units into Saudi Arabia. During the same time frame, both the CENTCOM (U.S. Central Command) and its Army element (i.e., ARCENT), were established in the theater of operations.

Early in the initial phase, CENTCOM planning limitations were imposed on the maximum number of troops that could be deployed into the theater. Therefore, priority was given to the deployment of combat instead of logistic units in order to ensure maximum combat power on the ground to meet the Iraqi threat. The following major Army logistic units were deployed or established during this initial phase:

- 22nd Support Command
- 1st Corps Support Command
- 7th Transportation Group
- Division Support Commands.

This type of deployment, i.e., maximum combat power with limited logistic support, dictated an immediate need for additional logistic support beyond the Army's logistical capability being assembled in-theater. Using contractors was an appealing

option. The contractors were immediately available, experienced, and did not count against the CENTCOM-imposed force structure limitations. Therefore, heavy reliance was placed on contractor, and later DAC, support to supplement the logistics forces. For example, the General Dynamics Services Company played a critical role early on in providing all types of support to Army units as they arrived at the Ad Dammam port.

In the August to October time frame, the U.S. contractors were located on the battlefield at nine fixed locations and employed 424 personnel, and with eight operational Army field units that employed 91 personnel. Of the nine fixed locations, one, the TAMP-base, was in Abu Dhabi, UAE; six were at cities or other permanent sites in Saudi Arabia; one was at a U.S. Army logistic base in Saudi Arabia; and one was operating at the theater level. The one foreign maintenance contractor supporting U.S. Army forces was located at Ad Dammam, SA. All other foreign contractors were operating trucks and buses forward to the log bases. The 30 DAC personnel were located at the fixed locations; Abu Dhabi, UAE; Ad Dammam, SA; and Dhahran, SA.

Figure 3-1 is a map of the theater. It depicts contractor locations during the initial phase.

Phase Summary

The Army had contracts with 51 companies to provide various types of maintenance, supply, and transportation support during the initial phase. Those contractors provided that support by providing 1,398 people. Of these people, 515 worked for 41 U.S. contractors and the remaining 883 people worked for 10 foreign contractors. Thirty DACs also provided support during this phase. The contractors and DACs totaled 1,428 people divided among the maintenance (439), supply (95), and transportation (894) functions. (Refer to Table 3-1.)

During this phase, contractor and DAC personnel provided support to nine fixed locations, eight organizational locations, and the rear area. United States contractors provided support at all of the fixed locations and the only support to the organizational locations. The DAC support was limited to three of the fixed locations. Foreign contractors provided support to the rear area and to one fixed location. The largest number of personnel (882) (i.e., contractor plus DACs), were stationed in the rear area. Of the remaining personnel, 455 were located at fixed locations and 91 at

TABLE 3-1
INITIAL PHASE SUMMARY

			Fixed locations				Organizatio	nai locations	Rear área	Grand	
Personnel	Number	Maint.	Supply	Trans.	Total	Maint.	Supply	Trans	Total	Trans.	total
J S	41	343	ر,	11	474	83	,	,	91	ζ	515
foreign	10	,	. o		1	อ)	0	0	882	883
DAG	t)A	12	18	j j	30	Q)	2	0	C	30
rotal	51	356	88	11	455	83	,	1	91	882	1,428

Note: NA = Not applicable

organizational locations. Dhahran, S,A was the fixed location with the largest number of permanent personnel (259), while the organizational location with the largest number of permanent personnel (65) was the 1st Cavalry.

Each of the 41 U.S. contractors provided maintenance support during this phase. Also, 12 of these provided supply support and 4 provided transportation support. Of the 10 foreign contractors, 1 provided maintenance support, 1 provided supply support, and 9 provided transportation support. The DAC support consisted of maintenance and supply. The list of weapon systems and end items supported during this phase is in Appendix F.

Who Provided Support?

U.S. Contractors. Table 3-2 lists the 41 U.S. contractors that provided support during this phase and the personnel each furnished (by functional area). These 515 people were divided among the maintenance (426), supply (77), and transportation (12) functions. Three companies had multiple contracts: GTE Government Systems Corporation and General Dynamics Services Company each had two contracts while the Raytheon Corporation Missile Systems Division had three.

The AMC MSCs established contracts with 40 of the contractors, and Fort Hood let 1 contract. Among the MSCs, AMCCOM let 3 contracts, ATCOM let 22, CECOM let 7, MICOM let 4, and TACOM let 4. Table 3-3 is annotated to show these relationships. For details about the locations and the functions performed by the contractors associated with each MSC or Fort Hood, refer to Appendix C.

TABLE 3-2
U.S. CONTRACTOR SUPPORT DURING THE INITIAL PHASE

		Number of	personnel	
Contractors	Maint.	Supply	Trans.	Total
Beech Aerospace Service, Inc. (2)	26	8	0	34
Bell Helicopter Textron, Inc. (2)	2	0	0	2
Boeing Helicopters, Inc. (2)	1	l o	0	1
CCL, Inc. (3)	1 1	0	Ó	1
COBRO Corporation (2)	2	0	Ō	2
DynCorp, Inc. (2)	100	35	0	135
FMC Corporation (5)	1	Ō	Ŏ	1
GTE Government Systems Corporation (3)	6	3	1	10
GTE Government Systems Corporation (3)	1	0	0	1
General Dynamics Land Systems Division (1)	2	Ö	Ö	2
General Dynamics Services Company (5)	98	4	8	110
General Dynamics Services Company (5)	20	6	1	27
General Electric Aerospace (3)	2	ŏ	Ö	2
General Electric Company (2)	2	ŏ	ŏ	2
General Instruments (2)	2	ŏ	Ŏ	2
Honeywell (2)	1 2	ŏ	ŏ	2
Honeywell Military Avionics Division (1)	2 2	Ŏ	ŏ	2
Howell (2)	2	ŏ	Ö	2
Hughes (2)	1 1	Ŏ	ŏ	1
ITT (2)	1	ŏ	Ŏ	1
Jonnson Controls World Services, Inc. (2)	11	ă	ŏ	15
Lockheed Support Systems, Inc. (6)	39	1	ŏ	40
ManTech Field Engineering Corporation (3)	13	,	ŏ	14
Martin Marietta Corporation (2)	16	o	ŏ	16
McDonnell Douglas Electronic Systems Company (4)	3	ŏ	ŏ	3
McDonnell Douglas Helicopter Company (2)	7	Ŏ	ŏ	7
Northrop (2)	í	ŏ	ŏ	ĺ
Pentastar Electronics, Inc. (1)	2	ŏ	ŏ	2
Petroleum Helicopter Company (2)	1 1	ŏ	Ĭ	1
Potomac Research, Inc. (3)	5	Ö	ő	5
Raytheon Corporation Missile Systems Division (4)	3	Ö	ő	3
Raytheon Corporation Missile Systems Division (4)]	0	ŏ	1
Raytheon Corporation Missile Systems Division (4)	6	0	ŏ	6
SERV-AIR, Inc. (3)	18	ő	ŏ	18
Sanders (2)	1	ŏ	ő	'1
Scientific Atlantic (2)	2	0	ŏ	2
Sikorsky Aircraft Division (2)	4	0	l o	3
Sikorsky International Products, Inc. (2)	15	15	ŏ	30
Task Research (2)	1 1	0	0	1 1
Textron Lycoming (5)	4	0	ő	4
Willbros Butler Engineers, Inc. (2)	0	Ö	2	2
Tota!	426	77	12	515

Note 1. = AVCCOV 21 = ATCOV 3 = CECOV 4) = V COV 5) = TACOV and 61 = Fort Hood

The range of personnel provided by each contractor varied greatly. Table 3-3 shows that about 73 percent of the contractors provided 9 or less people and only about 5 percent of the contractors provided more than 100 people. The average number of personnel provided by each contractor was 12.5.

TABLE 3-3

RANGE OF U.S. CONTRACTOR PERSONNEL PROVIDED DURING INITIAL PHASE

Range	Number of contractors
1 through 9	30
10 through 49	9
50 through 99	0
100 or more	2

Foreign Contractors. Table 3-4 shows the 10 foreign contractors who provided support during the initial phase and the personnel they furnished (by functional area). These 883 people were divided among the maintenance function (1 person) and transportation function (882 people).

TABLE 3-4

FOREIGN CONTRACTOR SUPPORT DURING INITIAL PHASE

Control	Number of personnel					
Contractors	Maint.	Supply	Trans.	Total		
Abdullah A.M. Al-Khodari Est. (2)	0	0	a	a		
Al Magam Contracting (2)	0	0	a	a		
Al-Mawla General Services (2)	0	1 0	a	a		
American President Lines (3)	0	0	24	24		
Farrell Lines (3)	0	0	17	17		
Gulf Bridge Est (2)	O	0	а	a		
Ibrahim Al-Quatani Est. (2)	0	0	ه	a		
Lykes Lines (3)	0	0	17	17		
Sealand (3)	0	0	24	24		
Thyssen Hensche! (1)] 1	0	0	1		
Total	1	0	882	883		

Note. It = AMCCOM (2 - ARCENT and (3) = HO MSC

If These tive contractors provided a total of 800 personne. A detailed preakout of the number of personnel by contractor was not available.

The ARCENT established the contracts for five of the contractors, HQ MSC let four, and AMCCOM let one. Table 3-4 is annotated to show these relationships. For details about the locations and the functions performed, refer to Appendix C.

Department of the Army Civilians. The ATCOM and the aggregate of installations, depots, and other organizations (listed in Chapter 2) provided the DAC personnel. Thirty DACs provided support for maintenance (12 people) and supply (18 people). For further details about the locations and the functions performed, refer to Appendix C.

Where Was Support Provided?

U.S. Contractors. Table 3-5 shows the locations where contractors provided support. (See Figure 3-1 for the location of each contractor on the battlefield.) Each fixed location had on average eight permanent contractors stationed there and each organizational location had two. Dhahran, SA, was the fixed location with the largest number of permanent contractors (27) and the largest number of personnel (242). The organizational location with the largest number of permanent contractors and personnel was the 1st Cavalry Division with four contractors and 65 people. Of the 515 U.S. contractor personnel, 424 were located at these five fixed locations and the remaining 91 personnel were at the six organizational locations.

TABLE 3-5

LOCATIONS WHERE U.S. CONTRACTORS PROVIDED SUPPORT

Fixed location	Organizational location
Abu Dhabi, UAE (P)	1st Cavalry DIV (P) (T)
Ad Dammam, SA (P)	11th ADA BDE (P)
Al Jubail, SA (T)	12th AVN BDE (T)
Dhahran, SA (P) (T)	101st ABN DIV (AA) (P) (T)
KKMC, SA (P) (T)	124th MI BN (P)
King Fahd AFB, SA (T)	24th ID (P) (T)
Log base Bastogne, SA (T)	3rd ACR (P) (T)
Riyadh, SA (P) (T)	Other units (T)
Theater Army Area (T)	

 $\textit{Note}: (\mathbb{R}^n) = \text{Rermanently stationed} \ \ \text{and} \ (\mathbb{T}) = \text{temporarily stationed} \ \ \ \text{AVV} = \text{aviation}$

Contractors visited seven fixed locations and six organizational locations over 270 times on a temporary basis. The average fixed-location visit consisted of

1.5 people, lasted 1.25 days, and involved one contractor at a fixed location and two contractors at an organizational location.

Foreign Contractors. Nine of the ten foreign contractors provided permanent support in the rear area with the remaining one stationed at the fixed location of Ad Dammam, SA. (Refer Figure 3-1 for the location of each contractor on the battlefield.) Of the 883 foreign contractor personnel, 882 were located in the rear area and 1 person was at the single fixed location. We found no evidence to show that these contractors visited any location on a temporary basis to provide maintenance and supply support.

Department of the Army Civilians. The DACs were only located at three fixed locations: Abu Dhabi, UAE; Ad Dammam, SA; and Dhahran, SA. Of the 30 DACs providing support, the largest contingency of DACs (17) were located at Dhahran, SA. No evidence was uncovered to indicate the DACs visited any location on a temporary basis.

What Support Was Provided?

U.S. Contractors. Each of the 41 U.S. contractors provided some type of maintenance support. Altogether, they provided 76 separate instances of maintenance support at the various locations they served. Fifty of those instances were at fixed locations and the remaining 26 were at organizational locations. The type of maintenance support provided included organizational, depot maintenance, modifications, deprocessing, training, and technical support. Technical support (17 cases) was the largest maintenance subfunction provided. Twelve U.S. contractors provided 18 separate instances of supply support divided between the fixed locations (66 percent) and organizational locations (33 percent). This support was almost exclusively Class IX support. The small number of contractors (four) who provided the eight cases of transportation support did so from fixed locations, with the exception of one case. In the exception, support was provided at an organizational location.

Foreign Contractors. Nine of the foreign contractors provided transportation support in the real area. Each of those contractors provided truck driver support, and two provided bus driver support. Each of the contracts required the contractor to provide a vehicle (e.g., a HET, Lowboy, or bus) for the driver. The remaining

TABLE 3-6

INITIAL PHASE - NUMBER OF CASES WHERE FUNCTIONAL AREA SUPPORT WAS PROVIDED

Functional area	U.S. contractors	Foreign contrar ors	DACs	Total
Maintenance	76	1 ,	3	80
Organizational	3	0	C	3
DS	0	υ	0	C
GS	0	0	0	0
Depot	7	0	0	7
ORG-DS	5	U	0	6
ORG-GS	9	0	0	9
GRG-Depot	5	0	0	5
DS-GS	2	0	0	2
DS-Depot	0	0	0	0
GS-Depot	2) 0	0	2
AVUM	0	0	0	0
AVIM	5	0	Û	5
AVUM-Depot	7	0	0	7
Modification	7	0	0	7
Deprocess	2	0	1 0	2
Training	8	1	0	9
Technical	17	1	0	18
Supply	18	1	3	22
Class II	0	0	U	0
Class III	1	0	0	1
Class IV	1	0	^	1
Class V	С	1 0		C
Class VII	Ö	0	9	0
Class IX	15	1	1 2	18
Fielding	1	1 0	0	1
Training	l 0	1 0	1 0	0
Technical	0	Ò	0	C
Installation	0	0	C	0
Transportation	8	9	С	17
Mode	1	O	0	1
Termina"	1	0	į o	1
Offloading	0	0	0	ŋ
Bus drivers	6	2	0	2
Truck drivers	0	9	{	ġ

Nintle: Fig. this have the number of subfunctional cases may not edual the number of functional cases. There are two heavons for this of this accordance may have performed more than one subfunction at a particular location, second the information was infact performed. DS = direct subjects, GS = gangral customs GRC is organizational subject.

contractor provided the maintenance and supply support at a fixed location. That support consisted of maintenance, training, technical support, and Class IX support.

Department of the Army Civilians. The DACs provided mainter ance and supply support at each of the three fixed locations at which they were stationed.

Phase Alpha - Preparation and Positioning (1 November 1990 Through 15 January 1991)

Description

The XVIII Airborne Corps and its units, as well as other combat units that arrived during the initial phase found themselves in an austere logistical environment. Those units and the support structure they established became the foundations upon which the theater of operations' logistics structure was developed and matured. The existence and employment of this structure were instrumental in receiving the VII Corps in a timely and effective manner. Contractors played a substantial role in this support. By the time the VII Corps began to arrive more than one-half of the contractor personnel were already in the theater of operation. During the period when the VII Corps and its units were arriving, almost all of the remaining contractors arrived, with an additional 25 percent of their personnel.

The major combat units that arrived in the theater of operations during this phase were as follows:

- VII Corps
- 1st Armored Division
- 1st Infantry Division
- 2d Armored Division (assimilated into other divisions)
- 3d Armored Division
- 2d Armored Cavalry Regiment.

The major logistic units that arrived in theater during this phase were the following:

- 2d Corps Support Command
- Division Support Commands.

During this phase, there was a continuous deployment of the forces to the north and west accompanied by a buildup of the lines of communication and the construction of log bases.

From 1 November 1990 through 15 January 1991, all contractors and DACs were heavily engaged in their support tasks. During this time frame, the U.S. contractors were located at 12 fixed locations employing 605 personnel. Also, they were with 23 Army units, a small number of Marine Corps units, and British operational units. The foreign contractors continued to provide transportation support as in the initial phase, but supplemented that support with a threefold increase in drivers and their trucks and buses.

The DACs who were initially employed at TAMP-base in Abu Dhabi, the ASG-SWA in Ad Dammam, and the TAMP-forward in Dhahran, were still primarily located at these same three sites by January. However, DACs participated in staffing two additional organizations, the MFT-SA in Ad Dammam and AMC-SWA in Dhahran. Very small DAC contingents had also been established at KKMC and at six log bases.

Figure 3-2 is a map of the theater noting the fixed support sites, combat units, and the supporting contractors during this phase.

Phase Summary

The Army had contracts with 87 companies to provide various types of maintenance, supply, and transportation support during the Alpha Phase. These contractors provided this support by providing 3,264 people. Of these people, 799 worked for 67 U.S. contractors and 2,465 worked for 20 foreign contractors. Four hundred and sixty-one DACs also provided support during this phase. Contractors and DACs totaled 3,725 people divided among the maintenance (948 people), supply (317 people), and transportation (2,470 people) functions. (Refer to Table 3-7.)

During this phase, contractor and DAC personnel provided support to 13 fixed locations, 23 organizational locations, and the rear area. United States contractors provided support to 12 of the 13 fixed locations and all of the organizational locations. The DAC support was found at 9 fixed locations and 2 organizational locations. Foreign contractors provided support to the rear area, to 2 fixed locations, and to 1 organizational location. The largest number of personnel (2,420) (i.e., contractors

TABLE 3-7
ALPHA PHASE SUMMARY

			Fixed locations				Organizatio	nal locations	Rear area	Grand	
Personnel	Number	Marst	Supply	Trans	Total	Maint	Supply	Trans.	Total	Trans.	letot
US Forsign Dw C s	67 20 844	472 20 264	118 3 187	!5 0 0	605 20 451	182 0 :0	12 0 0	2 25 10	194 25 10	2,420 3	799 2.465 461
Total	87	756	305	15	1,076	192	12	35	229	2,420	3,725

Note: "IA a not spp stable

plus DACs), were stationed in the rear area. Of the remaining personnel, 1,076 were located at fixed locations and 229 at organizational locations. Ad Dammam, SA (with 507 people) and Dhahran, SA (with 415 people) were the fixed locations with the largest number of permanent personnel. The 1st Cavalry Division was the organizational location with the largest number of personnel (90).

Sixty-five of the 67 U.S. contractors provided maintenance support during this phase. Also, 22 provided supply support and 6 provided transportation support. Of the 20 foreign contractors, 17 provided transportation support, 3 provided maintenance support, and 1 provided supply support. The DACs support consisted of maintenance and supply personnel. The weapon systems and end items supported during this phase are listed in Appendix F.

Who Provided Support?

U.S. Contractors. Table 3-8 shows the 67 U.S. contractors providing support during this phase and the personnel each furnished (by support area). Six companies had multiple contracts: General Dynamics Land Systems Division, General Dynamics Services Company, and McDonnell Douglas Helicopter Company each had two contracts; GTE Government Systems Corporation, Hughes Aircraft Company, and Raytheon Corporation Missile Systems Division each had three contracts. The 799 people supplied by those contractors were divided among the maintenance (654), supply (130), and transportation (15) functions.

The AMC MSCs established contracts with 66 of the contractor; Fort Hood let one. Among the MSCs, AMCCOM let 5 contracts, ATCOM let 23, CECOM let 18, MICOM let 7, and TACOM let 13. Table 3-8 is annotated to show these relationships.

TABLE 3-8
U.S. CONTRACTOR SUPPORT DURING THE ALPHA PHASE

		Number of	personnel	
Contractors	Maint.	Supply	Trans.	Total
ARINC Research Corporation (3) AYDIN Corporation (3)	2	00	0	2
	Ö	7	ŏ	7
Automated Research Systems, Inc. (5)	41		Ö	
Beech Aerospace Service, Inc. (2)	3	13 0		54 3
Bell Helicopter Textron, Inc. (2)	3		0	1
Boeing Helicopters, Inc. (2)	4	0	0	4
CCL, Inc. (3)		Ö		
COBRO Corporation(2)	3 0		0	3
Chem-Nuclear Systems, Inc. (1)	150	1	0	100
DynCorp, Inc. (2)		48		198
Everett Equipment, Inc. (5)	1	0	0	1
FMC Corporation (5)	11	0	0	11
GE Defense Systems Division (5)	3	0	0	3
GE-ASD, Inc. (5)	2	0	0	2
GTE Government Systems Corporation (3)	16	4	1	21
GTE Government Systems Corporation (3)	2 6	0	C	2
GTE Government Systems Corporation (3)	0	0	0	0
General Dynamics Land Systems Division (1)	2	0	0	2
General Dynamics Land Systems Division (5)	28	6	0	34
General Dynamics Services Company (5)	98	4	8 3 0	110
General Dynamics Services Company (5)	30	20	3	53
General Electric Aerospace (3)	2	0		2
General Electric Company (2)	2	0	0	2
General Instruments (2)	3	0	0	3
Honeywe'l, Inc. (2)	3	0	0	3
Honeywe-I Military Avionics Division (1)	2 2 3 3 4 2 2 4 2 2 2	0	0	2 3 4 2 2 4
Howell, Inc. (2)	2	0	0	2
Hughes, Inc. (2)	2	0) o	2
Hughes Aircraft Company (1)	4	0	0	4
Hughes Aircraft Company (4)	2	0	0	2 2 2
Hughes Aircraft Company (5)	2	0	0	2
ITT, Inc. (2)		o c	0	10
Johnson Controls World Services, Inc. (2)	14	5 0	0	19
Laguna industries, incorporated (3)	1) >	0	1
Librascope, Inc. (3)	2	0) 0	2
Litton Data Systems (3)	1 20	l i	0	40
Lockheed Support Systems, Inc. (6)	39 4		0	
Loral, Inc. (3)	7	0	0	4
Loral Vought Systems, Inc. (4)		, ,	, •	6
MILTOPE Čorporation (3) Mack Trucks, Inc. (5)	5 1	Ö	0	1
ManTech Field Engineering Corporation (3)	19		Ö	21
Martin Marietta Corporation (2)	20	0	0	20
McDonnell Douglas Electronic Systems Company (4)	3	ŏ	Ö	3
McDonnell Douglas Electronic Systems Company (4) McDonnell Douglas Helicopter Company (2)	10)	0	10
	7	0	0	7
McDonnell Douglas Helicopter Company (2) Motorola, inc. (3)		0	0	
	2	0	0	2
Northrop, Inc. (2) Orbhorb Truck Corporation (5)	2			2
Oshkosh Truck Corporation (5) Pentastar Electronics, Inc. (1)	2	0	0	1 3
rentastar diectronics, inc. (1)	4	! '	1	3

Note: $C^{*} = AVCCON^{*} C = A^{*}COM^{*} B = CECON^{*} (4) = VICOM^{*} (5) = TACOM^{*} and B = Forthood^{*}$

TABLE 3-8
U.S. CONTRACTOR SUPPORT DURING THE ALPHA PHASE (Continued)

	Number of personnel					
Contractors	Maint.	Supply	Trans.	Total		
Petroleum Helicopter Company (2) Potomac Research, Inc. (3) Raytheon Corporation Missile Systems Division (4) Raytheon Corporation Missile Systems Division (4) Raytheon Corporation Missile Systems Division (4) Rockwell International Corporation (3) Rockwell Tactical Systems Division (4) SERV-AIR, Inc. (3) Sanders, Inc. (2) Scientific Atlantic, Inc. (2) Sikorsky Aircraft Division (2) Sikorsky International Products, Inc. (2) TRI-EX Tower Corporation (3) Task Research, Inc. (2) Teledyne Continental Motors, Inc. (5) Textron Lycoming, Inc. (5) Willbros Butler Engineers, Inc. (2)	1 5 8 1 11 2 4 6 2 2 3 15 2 2 14 2	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	000000000000000003	1 5 8 1 11 2 4 6 2 2 3 30 2 2 14 7		
Total	654	130	15	799		

Note: (1) = AMCCOM; (2) = ATCOM; (3) = CECOM: (4) = MICOM; (5) = TACOM; and (6) = Fort Hood

For details about the locations and functions performed by the contractors associated with each MSC or Fort Hood, refer to Appendix C.

The range of personnel provided by each contractor varied greatly. Table 3-9 shows that more than 77 percent of the contractors provided 9 or fewer people and only about 3 percent of the contractors provided more than 100 people. The average number of people provided by each contractor was 12.

TABLE 3-9

RANGE OF U.S. CONTRACTOR PERSONNEL PROVIDED DURING ALPHA PHASE

Range	Number of contractors
1 through 9	52
10 through 49	11
50 through 99	2
100 or more	2

Foreign Contractors. Table 3-10 shows the 20 foreign contractors who provided support during the Alpha phase and the personnel each furnished (by support area). Only one contractor had multiple contracts: Al-Masarah LTD had two. The 2,465 people were divided among the maintenance (20 persons) and transportation (2,445 persons) functions.

TABLE 3-10

FOREIGN CONTRACTOR SUPPORT DURING ALPHA PHASE

Cambrastana	Number of personnel						
Contractors	Maint.	Supply	Trans.	Total			
Abdullah A.M. Al-Khodari Est. (2)	0	0	à	a			
Adil Al-Misehal (2)	0	0	a	a			
Ahmad N. Albinali & Sons (2)	0	0	25	25			
Al Askar Trading Est. (2)	0	0	a	a			
Al Magam Contracting (2)	0	0	a	a			
Al Matrood Trading Est. (2)	0	0	a	a			
Al Shamrany Metal Industries (2)	0	0	a [a			
Al-Masarah LTD (2)	7	0	0	7			
Al-Masarah LTD (2)	12	1 0	0	12			
Ali Saleh Alamri Est. (2)	0	0	а	a			
American President Lines (3)	0	0	50	50			
Bandar International (2)	0	0	a	a			
Dallah Transport Co. (2)	0	0	a	a			
Farrell Lines (3)	0	0	40	40			
Gulf Bridge Est. (2)	0	0	a	a			
Humoud Ibrahim Al-ziab Co. LTD (2)	0	0	a	a			
Ibrahim Al-Quatani Est. (2)	1 0	0	ai	a			
Lykes Lines (3)	0	0	40	40			
Sealand (3)	0	0	50	50			
Thyssen Henschel (1)	1	0	0	1			
Total	20	0	2,445	2,465			

Note: (1) = AMCCOM; (2) = ARCENT, and (3) = HQ MSC

The ARCENT established contracts with 15 of the contractors, HQ MSC let 4 and AMCCOM let 1. Table 3-10 is coded to show these relationships. For details about the locations and functions performed, refer to Appendix C.

Department of the Army Civilians. Each of the five MSCs and the aggregate of installations, depots, and other organizations listed in Chapter 2 provided the DAC

^{*} These 12 contractors provide a total of 2,240 personnel. A detailed preakout of the number of personnel by contractor was not available.

personnel. Four hundred and sixty-one DACs provided support for maintenance (274 people) and supply (187 people). For details about the number of personnel, locations, and functions performed refer to Appendix C.

Where Was Support Provided?

U.S. Contractors. Table 3-11 shows that the 67 U.S. contractors provided permanent support at seven fixed locations and eighteen organizational locations. (Refer to Figure 3-2 for the location of each contractor on the battlefield.) Each fixed location had an average of 10.5 contractors permanently stationed there and each organizational location had 3. Dhahran, SA, was the fixed location with the largest number of permanent contractors (40) and the largest number of personnel (380).

TABLE 3-11

LOCATIONS WHERE U.S. CONTRACTORS PROVIDED SUPPORT DURING ALPHA PHASE

Fixed location	Organizational location			
Abu Dhabi, UAE (P)	1st AD (P)			
Ad Dammam, SA (P)	1st Cavalry (P) (T)			
Al Jubail, SA (P) (T)	1st ID (P)			
Dhahran, SA (P) (T)	11th ADA BDE (P)			
Hafir Al Batin, SA (P)	12th AVN BDE (T)			
KKMC, SA (P) (T)	101st ABN DIV (AA) (P) (T)			
King Fahd AFB, SA (T)	124th MI BN (P)			
Log base Alpha (T)	142d FA BDE (T)			
Log base Bastogne, SA (T)	2d ACR (P) (T)			
Log base Bravo (T)	2d AD (P)			
Riyadh, SA (P) (T)	24th ID (P) (T)			
Theater (T)	212th FA BDE (T)			
,	3d ACR (P) (T)			
	3d AD (P)			
	35th Sig BDE (P)			
	82d ABD (P) (T)			
	TF 8-43/32d ADCOM (P)			
	III Corps Elements (P)			
	VII Corps (P) (T)			
	British (P)			
	Egyptian (T)			
	USMC (P) (T)			
	Other (T)			

Note: $\langle P \rangle = \text{permanently stationed}$ and $\langle T \rangle = \text{temporarily stationed}$

The organizational location with the largest number of contractors and personnel was the 1st Cavalry with nine contractors and 65 people. Of the 799 U.S. contractor

personnel, 605 people were located at those seven fixed locations and the remaining 194 people were at the 18 organizational locations.

Contractors visited 9 fixed locations and 13 organizational locations over 485 times on a temporary basis. The average visit consisted of 4.5 people, lasted almost 1.5 days, and, at a fixed-location, involved almost 3 contractors; organizational-location visits involved 2.4 contractors.

Foreign Contractors. Sixteen of the 20 foreign contractors provided permanent support in the rear area. The fixed locations of Ad Dammam, SA, had two contractors, and log base Alpha had one contractor located there. The remaining contractor was stationed with the 1st Cavalry, an organizational location. (Refer to Figure 3-2 for the location of each contractor on the battlefield.) Of the 2,465 foreign contractor personnel, 2,420 people were in the rear area, 20 people were in fixed locations, and 25 people were at the single organizational location. We found no evidence to show that the foreign contractors visited any locations on a temporary basis to provide maintenance or supply support.

Department of the Army Civilians. The DACs provided permanent support at eight fixed locations and at two organizational locations. Table 3-12 lists those locations. Of the 461 DACs providing support, the largest contingent (380 people) was located at Ad Dammam, SA.

TABLE 3-12

LOCATIONS WHERE DEPARTMENT OF THE ARMY CIVILIANS PROVIDED

SUPPORT DURING ALPHA PHASE

Fixed location	Organizational location
Abu Dhabi, UAE (P) Ad Dammam, SA (P) Al Jubail, SA (T) Dhahran, SA (P) Log base Alpha (P) Log base Bastogne, SA (P) Log base Bravo (P) Log base Delta (P) Theater (P) (T)	24th ID (P) Other (P)

Note: $\langle P \rangle = \text{permanently stationed, and } \langle \overline{\gamma} \rangle = \text{temporarily stationed}$

The DACs visited each of two fixed locations once on a temporary basis. The average visit consisted of 10 people and lasted 16 days.

What Support Was Provided?

U.S. Contractors. All but two of the 67 U.S. contractors provided some type of maintenance support. Altogether, they provided 180 separate instances of maintenance support at the various locations they served. Ninety-six of these instances were at fixed locations and the remaining 84 were at organizational locations. The type of maintenance support provided included organizational, through depot maintenance, modifications, deprocessing, training, and technical support. Technical support and training were the largest maintenance support subfunctions, with 67 and 44 instances provided, respectively. Twenty-two contractors provided 50 instances of supply support divided between the fixed locations (about 60 percent) and organizational locations (about 40 percent). Most of this support was in the Class IX support subfunction, with some assistance also being provided in the areas of technical support and fielding. The small number of contractors (six) who provided the nine instances of transportation support did so from fixed locations. (Refer to Table 3-13.)

Foreign Contractors. Sixteen of the foreign contractors provided support in the rear area. Each of those contractors provided truck driver support and two provided bus drivers. Each of the contracts required the contractor to provide a vehicle (e.g., a HET, lowboy, or bus) for the driver. Three contractors provided maintenance support at fixed locations; one of these three also provided supply support. The remaining contractor provided transportation support at an organizational location.

Department of the Army Civilians. The DACs provided maintenance support to all nine of the fixed locations they served; at eight of these, supply support was also included. Support was limited to maintenance at the two organizational locations served.

Phase Bravo - Movement of the Corps (16 January Through 22 February 1991)

Description

The air war began on 16 January with attacks on both tactical and strategic targets. Air superiority was gained immediately. During Phase Bravo, deployment

TABLE 3-13

MAINTENANCE, SUPPLY, AND TRANSPORTATION PROVIDED DURING ALPHA PHASE

Functional area	U.S. contractors	Foreign contractors	DACs	Total
Maintenance	180	3	18	201
Organizational	4	0	0	4
DS	0	0	. 1	1
GS	0	o	0	0
Depot	16	0	2	18
ORG-DS	15	0	0	15
ORG-GS	30	0	0	30
ORG-Depot	24	0	0	24
DS-GS	5	0	0	5
DS-Depot	4	0	0	4
GS-Depot	8	0	1	9
AVUM	1	С	0	1
AVIM	8	0	0	8
AVUM-Depot	7	0	0	7
Modification	6	2	7	15
Deprocess	20	0	2	22
Training	44	1	1	46
Technical	67	1	2	70
Supply	50	1	12	63
Class II	0	0	0	0
Class III	1	O	0	1
Class IV	1 1	0	0	1
Class V	l 0	0	0	0
Class VII	l o	0	o	0
Class IX	30	1	6	37
Fielding	9	0	2	11
Training	4	0	1	5
Technical	10	0	j 1	1 1
Installation	i i	0	0	1
Transportation	9	17	0	26
Mode	1	0	O	1
Terminal	1	0	Ò	1
Offloading	l 0	0	O	0
Bus drivers	Ō	2	Ō	2
Truck drivers	l o	17	0	17

Note: For this table in enumber of subfunctional cases may not equal the number of functional cases. There are two reasons for this infirst, a contractor may have performed more than one subfunction at a particular location; second, the information we received only indicated that the major function was performed.

of the major Army combat units ended. Army combat and supporting units carried out the realignment of forces, a crossing maneuver, to prepare for the ground attack on the Iraqi forces. The VII and XVIII Airborne Corps initiated its movements from its bases to its tactical assembly areas. Their green-suit logistics capability was repositioned to support the planned offensive. During times when the logistics infrastructure was relocated, the U.S. contractors mostly accompanied those units. This involved only about 20 percent of the U.S. contractor personnel and no foreign contractors or DACs. The COSCOMs continued their operations mostly from the log bases during this phase.

The remaining 80 percent of the U.S. contractors were substantially in the same locations as they were during the Alpha Phase. The only major difference in support was that the number of personnel grew by 25 percent at the established fixed locations. The foreign contractors continued their transportation support as in the initial phase supplemented by 500 additional drivers and related transportation equipment. The DAC locations remained essentially static, the same as during the Alpha Phase.

Figure 3-3 depicts the theater locations of fixed support sites, the combat units, the supporting logistic units and bases, and the physical locations of contractors.

Phase Summary

The Army had contracts with 90 companies to provide various types of maintenance, supply, and transportation support during the Bravo Phase. These contractors provided support by providing 3,882 people. Of these people, 945 worked for 71 U.S. contractors and 2,937 worked for 19 foreign contractors. Seven hundred and sixty-seven DACs also provided support during this phase. Contractors and DACs totaled 4,649 people divided among the maintenance (1,255 people), supply (454 people), and transportation (2,940 people) functions (refer to Table 3-14).

During this phase, contractors and DAC personnel provided support to 15 fixed locations, 21 organizational locations, and the rear area. United States contractors provided support to 14 of the 15 fixed locations and all of the organizational locations. Foreign contractors provided support to the rear area, to one fixed location, and to one organizational location.

TABLE 3-14
BRAVO PHASE SUMMARY

			fixed la	cations		Organizational locations				Organizational locations		Rear area	Grand
Personnel		Maint	Supply	Trans.	Total	Maint.	Supply	Trans.	Total	Trans.	total		
U \$	71	592	148	15	755	180	10	0	190	o	945		
Foreign	19	12	3	0	12	0	0	25	25	2 900	2 937		
DAG	NΔ	471	296	0	757	0	٥	0	3	0	767		
†otal	90	1,075	444	15	1,534	180	10	25	215	2 900	4 649		

The DACs provided support at 12 fixed locations. The largest number of personnel (2,900) were stationed in the rear area. Of the remaining personnel, 1,534 were located at fixed locations and 215 at organizational locations. Ad Dammam, SA (with 791 people), and Dhahran, SA (with 472 people), were the fixed locations with the largest number of permanent personnel. The 1st Cavalry was the organizational location with the largest number (85) of personnel.

Seventy of the 71 U.S. contractors provided maintenance support during this phase. Also, 23 provided supply support, and 6 provided transportation support. Of the 19 foreign contractors, 18 provided transportation support and 1 provided maintenance support. The DACs support consisted of maintenance and supply. The weapon systems and end items supported during this phase are listed in Appendix F.

Who Provided Support?

U.S. Contractors. Table 3-15 shows the 71 U.S. contractors providing support during this phase and the personnel each furnished (by support area). Seven companies had multiple contracts: GTE Government Systems Corporation; General Dynamics Services Company; Lockheed Support Systems, Inc.; McDonnell Douglas Electronic Systems Company; and McDonnell Douglas Helicopter Company each had two contracts. Hughes Aircraft Company and Raytheon Corporation Missile Systems Division each had three contracts. The 945 people supplied by those contractors wer divided among the maintenance (772 people), supply (158 people), and transportation (15 people) functions.

The AMC MSCs established contracts with 70 of the contractors; Fort Hood let one. Among the MSCs, AMCCOM let 3 contracts, ATCOM let 27, CECOM let 17,

TABLE 3-15
U.S. CONTRACTOR SUPPORT DURING THE BRAVO PHASE

		Number o	f personnel	
Contractors	Maint.	Supply	Trans.	Total
ARING Research Corporation (3)	2	Ú	0	2
AYDIN Corporation (3)	1	0	0	1
Aeromaritime Mediterranean Corporation (2)	5	0	a	5
Allison Gas Turbine Division - GMC, Inc. (2)	1	0	0	1 1
Automated Research Systems, Inc. (5)	0	7	0	7
Beech Aerospace Service, Inc. (2)	54	18	0	72
Bell Helicopter Textron, Inc. (2)	3	Ú	0	3
Boeing Helicopters, Inc. (2)	1	0	0	1
Brown international Corporation (4)	5	C i	0	5
CCL, Inc. (3)	4	0	0	4
CO3RO Corporation (2)	5	0	0	5
Cincinnati Electronics Corporation (3)	1	0 [0	1
DynCorp (2)	180	61	Q	241
Electronics & Space Corporation (5)	1	0	O	1
Everett Equipment, Inc. (5)	1	0	0	1
FMC Corporation (5)	7	0	0	7
GE Defense Systems Division (5)	3	()	0	3
GE-ASD, Inc. (5)) 2	C	0	2
GTE Government Systems Corporation (3)] 16	4	1 1	21
GTE Government Systems Corporation (3)	5	ìoi	0	5
General Dynamics Land Systems Division (5)	26	8	0	34
General Dynamics Services Company (5)	98	4	8	110
General Dynamics Services Company (5)	53	23	3	79
General Electric Aerospace (3)	4	0	0	4
General Electric Company (2)	2	0	0	2
General instruments (2)	2	0	0	2
Honeywell, Inc. (2)	2	0	0	2
Honeywell Military Avionics Division (1)	4	0	0	4
Howell, Inc. (2)	2) G	0	2
Hughes, Inc. (2)	2	0	0	2
Hughes Aircraft Company (1)	4	. 0	0	4
Hughes Aircraft Company (4)	2)	0	2
Hughes Aircraft Company (5)	2	0	0	2
1TT, inc. (2)	2) v	0	2
Johnson Controls World Services, Inc. (2)	22	7	С	29
Kaman Sciences Corporation (5)	4) o	0	4
Laguna Industries, Incorporated (3)	1	0	0	1
Librascope, inc. (3)	2	C	0	2
Litton Data Systems (3)	1	0)	1
Lackheed Support Systems, Inc. (6)	39	1 1	0	40
Lockheed Support Systems, Inc. (2)	27	0	0	27
Loral, Inc. (3)	4) 0	0	4

Note: 1 - AMERON 2 - ATCOM 3 - BEOM 4 - MICOM 5 - TACOM and 6 - F MH264

TABLE 3-15

U.S. CONTRACTOR SUPPORT DURING THE BRAVO PHASE (Continued)

		Number o	f personnel	
Contractors	Maint.	Supply	Trans.	Total
MILTOPE Corporation (3)	5	1	0	6
Mack Trucks, Inc. (5)	1	0	0	ı
ManTech Field Engineering Corporation (3)	29	3	0	32
Martin Marietta Corporation (2)	25	0	e	25
McDonnell Douglas Electronic Systems Company (4)	2	0	0	2
McDonnell Douglas Electronic Systems Company (4)	3	0	0	3
McDonnell Douglas Helicopter Company (2)	12	0	0	12
McDonnell Douglas Helicopter Company (2)	10	0	0	10
Motorola Incorporated (3)	2	1 0	0	2
Northrop, Inc. (2)	2	e	Ú	2
Oshkosh Truck Corporation (5)	1	0	0	1
Pentastar Electronics, Inc. (1)	2	1	0	3
Petroleum Helicopter Company (2)	1	0	Ö	•
Raytheon Corporation Missile Systems Division (4)	6	0	0	6
Raytheon Corporation Missile Systems Division (4)	1	0	0	1
Raytheon Corporation Missile Systems Division (4)	14		Ó	14
Rockwell International Corporation (3)	2	0	0	2
Rockwell Tactical Systems Division (4)	1	l c	0	1
SERV-AIR, Inc. (3)	6	0	0	6
Sanders, Inc. (2)	2	O	0	2
Scientific Atlantic, Inc. (2)	2	0	Ç	
Shorts Brothers, Inc. (2)	4	1 1	Ü	2 5 3
Sikorsky Aircraft Division (2)	3	0	0	3
Sikorsky International Products, Inc. (2)	15	15	Ö	30
TRI-EX Tower Corporation (3)	2	0	Ŏ	2
Task Research, Inc. (2)	2	o	Ŏ	2
Teledyne Continental Motors, Inc. (5)	2	Ö	Ö	2
Textron Lycoming, Inc. (5)	1 11	Ì	Ö	11
Willbros Butler Engineers, Inc. (2)	2	4	3	9
Total	772	158	15	945

Note: (1) = AMCCOM (2) = ATCOM, (3) = CECOM, (4) = MICOM; (5) = TACOM; and (6) = Fort Hood

MICOM let 8, TACOM let 15, and Fort Hood let 1. Table 3-15 is annotated to show these relationships. For details about the locations and functions performed by the contractors associated with each MSC or Fort Hood, refer to Appendix C.

The range of personnel provided by each contractor varied greatly. Table 3-16 show that more than 77 percent of all contractors provided 9 or fewer people and

only about 3 percent of the contractors provided more than 100 people. The average number of people provided by each contractor was slightly more than 13.

TABLE 3-16

RANGE OF U.S. CONTRACTOR PERSONNEL PROVIDED DURING BRAVO PHASE

Number of contractors
55
12
2
{· 2
•

Foreign Contractors. Table 3-17 shows the 19 foreign contractors who provided support during the Bravo Phase and the personnel each furnished (by support area). No contractor had multiple contracts. The 2,937 people were divided among the maintenance (12 people) and transportation (2,925 people) functions.

The ARCENT established contracts with 15 of the contractors and HQ MSC let 4. Table 3-17 is annotated to show these relationships. For details about the locations and functions performed, refer to Appendix C.

Department of the Army Civilians. ATCOM, MICOM, TACOM, and the aggregate of installations, depots, and other organizations listed in Chapter 2 provided the DAC personnel. Seven hundred and sixty-seven DACs provided support for the maintenance (471) and supply (296) functions. For details about the number of personnel, locations, and functions performed, refer to Appendix C.

Where Was Support Provided?

U.S. contractors. (Refer to Figure 3-3 for the location of each contractor on the battlefield.) Each fixed location had an average of 11 contractors permanently stationed there and each organizational location had 3. Dhahran, SA, was the fixed location with the largest number of permanent contractors (39) and the largest number of personnel (438 people). The organizational locations with the largest number of contractors were the 1st Cavalry Division and 24th ID. The 1st Cavalry Division had the largest number of personnel (60 people). Of the 945 U.S. contractor

TABLE 3-17

FOREIGN CONTRACTOR SUPPORT DURING BRAVO PHASE

		Number of	personnel	
Contractors	Maint	Supply	Trans	Total
Abdullah A.M. Al-Khodari Est. (1)	0	0	а	a
Adil Al-Misehal (1)	0	0	a	a
Ahmad N. Albinali & Sons (1)	0	0	25	25
Al Askar Trading Est (1)	0	0	ا ه	a
Al Magam Contracting (1)	0	0] a]	a
Al Matrood Trading Est. (1)	0	0	a	a
Al Shamrany Metal Industries (1)	0	0	a	a
Al-Masarah LTD (1)	12	0	0	12
Al-Zhick Rullo Est. (1)	0	0	a	a
Ali Saleh Alamri Est. (1)	0	0	[a	a
American President Lines (2)	0	0	115	115
Bandar International (1)	0	0	a	a
Dallah Transport Co. (1)	0	0	a	a
Farrell Lines (2)	0	0	50	50
Gulf Bridge Est. (1)	0	0	a	a
Humoud Ibrahim Al-ziab Co. LTD (1)	, 0	0	a	a
Ibrahim Al-Quatani Est. (1)	1 0	0	a	a
Lyke Lines (2)	0	0	50	50
Sealand (2)	0	0	115	115
Total	12	0	2,925	2,937

Note: (1) = ARCENT and (2) = HQ MSC

personnel, 775 people were located at these 8 fixed locations and the remaining 190 people were at the 17 organizational locations.

Contractors visited 11 fixed locations and 13 organizational locations over 380 times on a temporary basis. The average visit consisted of almost 1.5 people and lasted approximately 1.5 days and at both fixed locations and organizational locations, the visit involved three tractors.

Foreign Contractors. Seventeen of the 19 foreign contractors provided permanent support in the rear area. The log base Alpha and the organizational location 1st Cavalry Division each had one contractor. (Refer to Figure 3-3 for the location of each contractor on the battlefield.) Of the 2,937 foreign contractor personnel, 2,900 were located in the rear area, 12 were at a fixed location, and

³ These 13 contractors provided a local of 2,570 personnel. A detailed breakout of the number of personnel by contractor was not available.

TABLE 3-18

LOCATIONS WHERE U.S. CONTRACTORS PROVIDED SUPPORT DURING BRAVO PHASE

Fixed location	Organizational location
Abu Dhabi, UAE (P) Ad Dammam, SA (P) Al Jubail, SA (P) (T) Dhahran, SA (P) (T) Hafir Al Batin, SA (P) KKMC, SA (P) (T) King fahd AFB, SA (T) Log base Alpha (T) Log base Bastogne, SA (T) Log base Bravo (T) Log base Echo (T) Riyadh, SA (P) (T) Theater (T)	1st AD (P) 1st Cavalry (P) (T) 1st ID (P) (T) 1st ID (P) (T) 11th ADA BDE (P) 12th AVN BDE (T) 101st ABN DIV (AA) (T) 142D FA BDE (T) 2d ACR (P) (T) 2d AD (P) 24th ID (P) (T) 3d ACR (P) (T) 3d AD (P) 35th Sig BDE (P) 82d ABD (P) (T) TF 8-43/32d ADCOM (P) Ill Corps Elements (P) VII Corps (P) (T) British (P) Egyptian (T) USMC (P) (T) Other (P) (T)

Note: (P) = permanently stationed; and (T) = temporarily stationed.

25 were at an organizational location. We found no evidence to indicate that the foreign contractors visited locations on a temporary basis and provided maintenance or supply support.

Department of the Army Civilians. The DAC permanent support was limited to 11 fixed locations. (Refer to Table 3-19.) Of the 767 DACs providing support, the largest contingent (651 people) was located at Ad Dammam, SA.

DACs visited each of two fixed locations once on a temporary basis. The average visit consisted of 10 people and lasted 3 days.

What Support Was Provided?

U.S. Contractors. All but one of the 71 U.S. contractors provided some type of maintenance support. Altogether, they provided 199 separate instances of maintenance support at the various locations they served. One hundred and nine of

TABLE 3-19

LOCATIONS WHERE DEPARTMENT OF THE ARMY CIVILIANS PROVIDED SUPPORT DURING BRAVO PHASE

Fixed location	Organizational location
Abu Dhabi, UAE (P)	NA
Ad Dammam, SA (P)	
Al Jubail, SA (T)	
KKMC, SA (P)	
Dhahran, SA (P)	1
Log base Alpha (P)	
Log base Bastogne, SA (P)	
Log base Bravo (P)	1
Log base Charlie (P)	
Log base Delta (P)	
Log base Echo (P)	
Theater (T)	

Note: (P) = permanently stationed; (T) = temporarily stationed, and NA = not applicable

these instances were at fixed locations and the remaining 99 were at organizational locations. The type of maintenance support provided included organizational, depot maintenance, modifications, deprocessing, training, and technical support. Technical support and training were the largest maintenance support subfunctions with 72 and 47 instances provided. Twenty-three contractors provided 57 cases of supply divided between the fixed locations (65 percent) and organizational (35 percent) locations. Most of this support was in the Class IX support subfunction, with some assistance also being provided in the areas of technical support and fielding. The small number of contractors (six) who provided the eight instances of transportation support did so from fixed locations. (Refer to Table 3-20.)

Foreign Contractors. Seventeen of the foreign contractors provided support in the rear area. Each of those contractors provided truck driver support and two provided bus drivers. Each of those contracts required the contractor to provide a vehicle (e.g., HET, Lowboy, or bus) for the driver. One contractor provided maintenance support at a fixed location. One contractor provided transportation support at an organizational location.

TABLE 3-20

MAINTENANCE, SUPPLY, AND TRANSPORTATION PROVIDED DURING BRAVO PHASE

Functional area	U.S. contractors	Foreign contractors	DACs	Total
Maintenance	199	1	17	217
Organizational	4	0	0	4
DS	0	0	1	1
GS	0	0	0	0
Depot	17	0	1	18
ORG-DS	14	0	0	14
ORG-GS	27	0	0	27
ORG-Depot	29	0	0	29
DS-GS	8	0	0	8
DS-Depot	4	0	0	4
GS-Depot	8	0	2	10
AVUM	12	0	0	12
AVIM	17	0	0	17
AVUM-Depot	12	0	0	12
Modification	2	1	5	8
Deprocess	24	0	2	26
Training	47	0	1	48
Technical	72	0	1	73
Supply	57	0	16	73
Class II	0	Ō	Ō	0
Class III	1	l o	0	1
Class !V	1	0	0	1
Class V	0	Ō	0	0
Class VII	0	Ō	0	Ō
Class IX	35	0	7	42
Fielding	12	0	2	14
Training	3	Ô	1	4
Technical	12	Ō	1	13
Installation	0	0	0	Ō
Transportation	8	18	0	26
Mode	1	Ō	Ö	1
Terminal	1	Ö	o	1
Offloading	0	j j	Ö	Ó
Bus grivers	Ö	2	ŏ	2
Truck drivers	Ō	18	ŏ	18

Note: For this table, the number of subfunctional cases may not equal the number of functional cases. There are two reasons for this if irst is contractor may have performed more than one subfunction at a particular location, second, the information we received only and cated that the major function was performed.

Department of the Army Civilians. Maintenance support was provided at all 12 of the fixed locations that the DACs served. The only location that did not receive supply support was Al Jubail, SA, which was the sole temporary location during Bravo Phase.

Phase Charlie - Ground Offensive (23 February Through 28 February 1991)

Description

No additional major Army combat or logistical units arrived in the theater during the Charlie Phase. Seventy-one U.S. contractors using 969 predominantly U.S. personnel, eighteen foreign contractors employing 2,925 predominantly local and foreign personnel, along with 770 DACs provided maintenance, supply, and transportation support. However, only 34 (less than 1 percent) of the total number of civilian personnel were identified as having crossed the borders with Army combat or logistical units. All of these personnel were employed by U.S. contractors.

By the conclusion of the Charlie Phase, the U.S. contractors were located on the battlefield at 14 fixed locations, with 784 people, and with at least 18 operational Army field units using 185 people. Of the 14 fixed locations, 1 was located outside of Saudi Arabia, 7 were at cities or fixed sites in Saudi Arabia, 5 were at Army logistic bases in Saudi Arabia, and 1 was located at the theater level. The foreign contractors continued their transportation support as they had in the Bravo Phase. We found no indication that any of the foreign contractors crossed the border during this phase.

The DAC locations were fairly static; DACs occupied one less fixed location in the Charlie Phase than they did in the Bravo Phase.

Figure 3-4 shows the detailed theater locations of the U.S. contractors during this phase.

Phase Summary

The Army had contracts with 89 companies to provide various types of maintenance, supply, and transportation support during Charlie Phase. These contractors provided support by providing 3,894 people. Of these people, 969 worked for 71 U.S. contractors and 2,925 worked for 18 foreign contractors. Seven hundred and seventy DACs also provided support during this phase. Contractors and DACs

totaled 4,664 people divided among the maintenance (1,267), supply (457), and transportation (2,940) functions. (Refer to Table 3-21.)

During this phase, contractors and DAC personnel provided support to 15 fixed locations, 18 organizational locations and the rear Army area. United States contractors provided support to 14 of the 15 fixed locations and all of the organizational locations. Foreign contractors provided support to the area and to one organizational location. The largest number of personnel (2,900) were stationed in the rear area. Of the remaining personnel (i.e., contractors plus DACs), 1,554 were located at fixed locations and 210 were at organizational locations. Ad Dammam, SA (with 814 people), and Dhahran, SA (with 484 people), were the fixed locations with the largest number of permanent personnel. The 1st Cavalry Division was the organizational location with the largest number (84) of people.

Seventy of the 71 U.S. contractors provided maintenance support during this phase. Also, 23 contractors provided supply support and 6 provided transportation support. Support by the 18 foreign contractors was limited to the functional area of transportation. The DAC support included both maintenance and supply. The weapon systems and end items supported during this phase are listed in Appendix F.

The number of personnel who accompanied units into Iraq and Kuwait during the ground war was 34. These personnel were provided by U.S. contractors. Inside Iraq and Kuwait they provided support from 16 locations. (Refer to Figure 3-4 for additional details.)

Who Provided Support?

U.S. Contractors. Table 3-22 shows the 71 U.S. contractors providing support during this phase and the personnel each furnished (by support area). Seven companies had multiple contracts: GTE Government Systems Corporation; General Dynamics Services Company; Lockheed Support Systems, Inc.; McDonnell Douglas Electronic Systems Company; and McDonnell Douglas Helicopter Company each had two contracts. Hughes Aircraft and Raytheon Corporation Missile Systems Division each had three contracts. The 969 people supplied by those contractors were divided among the maintenance (795 people), supply (159 people), and transportation (15 people) functions.

TABLE 3-21
CHARLIE PHASE SUMMARY

Personnel			Fixed locations					Organizational locations Re			Organizational locations Rear area			
	Number	Meint.	Supply	Trans.	Total	Maint.	Supply	Trans.	Total	Trans.	total			
U S Foreign DACs	71 18 NA	620 0 472	149 0 298	15 0 0	784 0 770	17 5 0 0	10 0 0	0 25 0	1 85 25 0	2.900 0	969 2,925 770			
fotal	89	1 092	447	15	1,554	175	10	25	210	2,900	4,664			

Note: NA = not applicable

TABLE 3-22
U.S. CONTRACTOR SUPPORT DURING THE CHARLIE PHASE

Cantanatana		Number of	personnel	
Contractors	Maint.	Supply	Trans.	Total
ARINC Research Corporation (3)	2	0	0	2
AYDIN Corporation (3)	1	0	0	. 1
Aeromaritime Mediterrariean Corporation (2)	5	0	0	5
Allison Gas Turbine Division ~ GMC (2)	1	0	0	1
Automated Research Systems, Inc. (5)	0	7	0	7
Beech Aerospace Service, Inc. (2)	62	20	0	82
Bell Helicopter Textron Inc. (2)	3	0	0	3
Boeing Helicopters, Inc. (2)	1	0	0	1
Brown International Corporation (4)	4	0	0	4
CCL, Inc. (3)	4	0	0	4
COBRO Corporation (2)	4	0	0	4
Cincinnati Electronics Corporation (3)	1	0	0	1
DynCorp, Inc. (2)	180	61	0	241
Electronics & Space Corp. (5)	1	0	0	1
Everett Equipment, Inc. (5)	1	0	0	1
FMC Corporation (5)	9	0	0	9
GE Detense Systems Division (5)	3	0	0	3
GE-ASD, Inc. (5)	2	0	0	2
GTE Government Systems Corporation (3)	16	4	1	21
GTE Government Systems Corporation (3)	5	0	0	5
General Dynamics Land Systems Division (5)	31	8	0	39
General Dynamics Services Company (5)	98	4	8	110
General Dynamics Services Company (5)	53	23	3	79
General Electric Aerospace, Inc. (3)	4	0	0	4
General Electric Company (2)	2	0	0	2
General Instruments, Inc. (2)	2	0) o	2

Note: (1) = 4MCCOV, (2) = A^*COM (3) = $CECON^*$ (4) = MICOV (5) = TACOV and (6) = Fort Hood

TABLE 3-22
U.S. CONTRACTOR SUPPORT DURING THE CHARLIE PHASE (Continued)

<u> </u>	Number of personnel			
Contractors	Maint.	Supply	Trans.	Total
Honeywell (2)	2	0	0	2
Honeywell Military Avionics Division (1)	4	0	0	4
Howell, Inc. (2)	2	0	0	2
Hughes, Inc. (2)	2	0	0 (2
Hughes Aircraft Company (1)	4	0	0	4
Hughes Aircraft Company (4)	2	0	0	2
Hughes Aircraft Company (5)	2	0	0	2
ITT, Inc. (2)	2	0	0	2
Johnson Controls World Services, Inc. (2)	22	7	0	29
Kaman Sciences Corporation (S)	4	0	0	4
Laguna Industries, Incorporated (3)	1	0	0	1
Librascope, Inc. (3)	2	Ó	0	2
Litton Data Systems, Inc. (3)	ī	o	0	1 1
Lockheed Support Systems, Inc. (6)	39	1	0	40
Lockheed Support Systems, Inc. (2)	27	0	0	27
Loral, Inc. (3)	4	Ō	o	4
MILTOPE Corporation (3)	5	1	0	6
Mack Trucks, Inc. (S)	1	o	Ŏ	1
ManTech Field Engineering Corporation (3)	29	3	0	32
Martin Marietta Corporation (2)	24	Ò	0	24
McDonnell Douglas Electronic Systems Company (4)	2	Ò	Ö	2
McDonnell Douglas Electronic Systems Company (4)	3	Ö	0	3
McDonnell Douglas Helicopter Company (2)	13	ŏ	Ö	13
McDonnell Douglas Helicopter Company (2)	10	Ö	Ö	10
Motorola incorporated (3)	2	Ì	Ö	2
Northrop, Inc. (2)	1	Ŏ	Ö	1
Oshkosh Truck Corporation (5)	i	ŏ	Ö	1
Pentastar Electronics, Inc. (1)	2	Ĭ	Ö	3
Petroleum Helicopter Company (2)	1	o	Ö	1
Raytheon Corporation Missile Systems Division (4)	6	Ö	Ö	6
Raytheon Corporation Missile Systems Division (4)	1	Ö	ŏ	1
Raytheon Corporation Missile Systems Division (4)	14	Ö	Ö	14
Rockwell International Corporation (3)	2	0	0	2
Rockwell Tactical Systems Division (4)	1 4	0	Ö	4
SERV-AIR, Inc. (3)	11	0	0	11
Sanders, Inc. (2)	'¦	0	Ö	';
Scientific Atlantic, Inc. (2)	2	0	Ö	2
Shorts Brothers, Inc. (2)	6	1	0	7
Shorts Brothers, Inc. (2) Sikorsky Aircraft Division (2)	3		0	3
SIKOISKY MITCHAIL DIVISION (2)		J		

Note: $A^* = AA^*COM$, $A^* = ATCOM$, $A^* = ATCOM$, $A^* = A^*COM$, $A^* = ATCOM$, $A^* = ATCO$

TABLE 3-22
U.S. CONTRACTOR SUPPORT DURING THE CHARLIE PHASE (Continued)

		Number of personnel			
Contractors	Maint.	Supply	Trans.	Total	
Sikorsky International Products, Inc. (2)	15	15	0	30	
TRI-EX Tower Corporation (3)	2	0	o	2	
Task Research, Inc. (2)	1 1	0	0	1	
Telegyne Continental Motors, Inc. (5)	2	l o	0	2	
Textron Lycoming, Inc. (5)	14	0	0	14	
Willbros Butler Engineers, Inc. (2)	2	3	3	8	
Tota!	795	159	15	969	

Note: (1) = AMCCOM; (2) = ATCOM; (3) = CECOM; (4) = MICOM; (5) = TACOM; and (6) = Fort Hood

The AMC MSCs established contracts with 70 of the contractors: Fort Hood let one. Among the MSCs, AMCCOM let 3, ATCOM let 27, CECOM let 17, MICOM let 8, TACOM let 15, and Fort Hood let one. Table 3-22 is annotated to show these relationships. For details about the locations and functions performed by the contractors associated with each MSC or Fort Hood, refer to Appendix C.

The range of personnel provided by each contractor varied greatly. Table 3-23 shows that more than 76 percent of all contractors provided 9 or fewer people and only about 3 percent of the contractors provided more than 100 people. The average number of people provided by each contractor was slightly more than 13.5.

TABLE 3-23

RANGE OF U.S. CONTRACTOR PERSONNEL PROVIDED DURING CHARLIE PHASE

Range	Number of contractors
1 through 9	54
10 through 49	13
50 through 99	2
100 or more	2

Foreign Contractors. Table 3-24 shows a complete listing of the 18 foreign contractors who provided support during Charlie Phase and the personnel each

furnished (by support area). No contractor had multiple contracts. All of the 2,925 personnel provided worked in the transportation area.

TABLE 3-24
FOREIGN CONTRACTOR SUPPORT DURING CHARLIE PHASE

		Number of personnel			
Contractors	Maint.	Supply	Trans.	Total	
Abdullah A.M. Al-Khodari Est. (1) Adil Al-Misehal (1) Ahmad N. Albinali & Sons (1) Al Askar Trading Est. (1) Al Maqam Contracting (1) Al Matrood Trading Est. (1) Al Shamrany Metal Industries (1) Al-Zhick Rullo Est. (1) Ali Saleh Alamri Est. (1) American President Lines (2) Bandar International (1) Dallah Transport Co. (1) Farrell Lines (2) Gulf Bridge Est. (1) Humoud Ibrahim Al-ziab Co. LTD (1) Ibrahim Al-Quatani Est. (1) Lyke Lines (2) Sealand (2)	000000000000000000000000000000000000000	000000000000000000000000000000000000000	25 a a a a 115a 115a a 50 a a	25 a a a a 115a 115a 50 a a 50 115	
Total	0	0	2,925	2,925	

Note: (1) = ARCENT, (2) = HQ MSC

The ARCENT established contracts with 14 of the contractors and HQ MSC let 4. Table 3-24 is annotated to show these relationships. For details on the locations and functions performed, refer to Appendix C.

Department of the Army Civilians. The ATCOM, MICOM, TACOM, and the aggregate of installations, depots, and other organizations listed in Chapter 2 provided the DAC personnel. Seven hundred and seventy DACs provided support for the maintenance (472) and supply (298) functions.

Where Was Support Provided?

U.S. Contractors. Table 3-25 shows the 71 U.S. contractors who provided permanent support at 9 fixed locations and 17 organizational locations. (Refer to

¹ These 13 contractors provided a total of 2,570 personnel. A detailed breakout of the number of personnel by contractor was not available.

Figure 3-4 for the location of each contractor on the battlefield.) Each fixed location had an average of nine contractors permanently stationed there and each organizational location had three. Dhahran, SA, was the fixed location with the largest number of permanent contractors (39) and personnel (445). The organizational location with the largest of contractors was the 24th ID. The 1st Calvary Division had the largest number of personnel (59). Of the 969 U.S. contractor personnel, 784 were located at these 9 fixed locations and the remaining 185 personnel were at the 17 organizational locations.

TABLE 3-25

LOCATIONS WHERE U.S. CONTRACTORS PROVIDED SUPPORT DURING CHARLIE PHASE

Fixed location	Organizational location	
Ahu Dhabi, UAE (P) Ad Dammam, SA (P) Al Jubail, SA (P)(T) Dhahran, SA (P) Hafir Al Batin, SA (P) KKMC, SA (P) (T) King Fahd AFB, SA (P) (T) Log base Alpha, SA (T) Log base Bastogne, SA (T) Log base Bravo, SA (T) Log base Charlie, SA (P) (T) Log base Echo. SA (T) Riyadh, SA (P) Theater (T)	1st AD (P) (T) 1st Cavalry (P) (T) 1st ID (P) 11th ADA BDE (P) (T) 101st ABN DIV (AA) (T) 2d ACR (P) 2d AD (P) 24th ID (P) 3d ACR (P) 3d AD (P) 82d ABD (P) TF 8-43/32d ADCOM (P) III Corps Elements (P) VII Corps (P) (T) XVIII Airborne Corps (P) (T) British (P) Other (P) (T) USMC (P) (T)	

Note: $P^{*} = permanent \cdot y$ stationed and (T) = temporarity stationed

Contractors visited nine fixed locations and eight organizational locations over 40 times on a temporary basis. The average visit consisted of 1.4 people, lasted approximately 1.5 days, and by both fixed locations and organizational location visits involved 1.4 contractors.

Thirty-six people from 10 U.S. contractors crossed the border into Iraq and Kuwait with military units during the ground war. For specific details, refer to Chapter 2.

permanent support in the rear area. The organizational location 1st Cavalry Division had one contractor. To see where the contractors were actually becated in the theater, refer to Figure 3-4. Two thousand nine hundred of the 2,925 foreign contractor personnel were located in the rear area; 25 were at an organizational location. These contractors did not visit any location on a temporary basis.

There is no evidence to indicate that foreign contractor personnel crossed the border into Iraq and Kuwait during the ground war.

Department of the Army Civilians. The DACs permanent support was limited to 11 fixed locations (refer to Table 3-26). Of the 770 DACs providing support, the largest contingent (650 people) was located at Ad Dammam, SA. The DACs visited one fixed location once on a temporary basis. The average visit consisted of one person and losted 1 day. No evidence indicates that DACs crossed the border into Iraq and Kuwait during the ground war.

TABLE 3-26

LOCATIONS WHERE DEPARTMENT OF THE ARMY CIVILIANS PROVIDED SUPPORT DURING CHARLIE PRASE

Fixed location	Organizational location
Abu Ohabi, UAE (P)	I NA
Ad Dansmam, SA (P)	
Dhahran, SA (P)	
KKMC, SA (P) (P)	
Log base Alpha, SA (P)	
Log base Bastogne, SA (P)	
Log base Bravo, SA (P)	
Log base Dalta, SA (P)	
Log base Charlie SA (?)	ĺ
Log base Eche, SA (2)	
Theater Army Area (P) (T)	

Note: P_{i} = permaner thy stationed z^{*} = remporately stationed, and t.4 = not applicable

What Support Was Provided?

U.S. Contractors. All but one of the 71 U.S. contractors provided some type of maintenance support. Altogether, they provided 169 separate instances of maintenance support at the various locations they served. Ninety-four of these

instances were at fixed locations and the remaining 66 were at organizational locations. The type of maintenance support provided included organizational, through depot maintenance, modifications, deprocessing, training, and technical support. Technical support and training were the largest maintenance subfunctions of support with 47 and 42 instances provided. Twenty-three contractors provided 52 instances of supply divided between the fixed locations (66 percent) and organizational locations (33 percent) support. Most of this support was in the Class IX support subfunction. The small number of contractors (six) who provided the nine instances of transportation support did so from fixed locations (refer to Table 3-27).

Foreign Contractors. Seventeen of the foreign contractors provided transportation support in the rear area. Each of those contractors provided truck driver support and two provided bus drivers. Each of those contracts required the contractor to provide a vehicle (e.g., a HET, Lowboy, or bus) for the driver. The remaining contractor provided transportation support at an organizational location.

Department of the Army Civilians. Maintenance and supply support was provided to all 11 of the fixed locations that the DACs served.

CONCLUSIONS

This chapter shows that from the time the first U.S. soldier landed in the ODS/S theater of operation, contractor and DAC support started in earnest. The Army units in the theater needed specialized maintenance and supply support. That need was met through contractors and DACs who were made available almost exclusively by the Army's "wholesale system." Of the 76 U.S. contractors who provided that type of support, only 1 was not contracted for through the wholesale system.

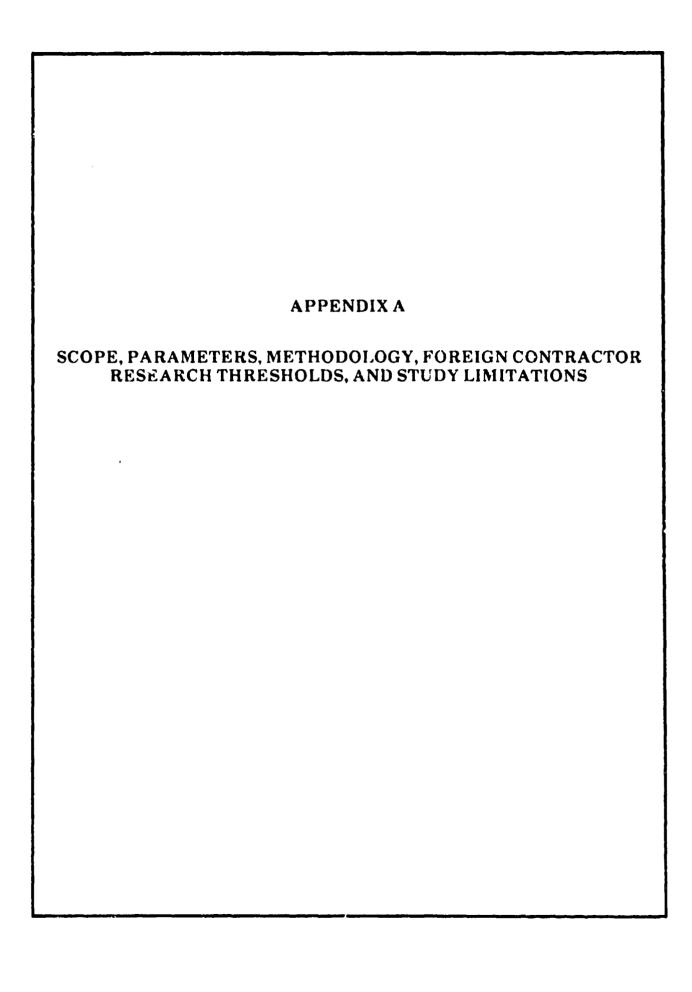
The Army's transportation effort, which was the linchpin of ODS S logistical operations, received a substantial boost from foreign contractors. Without the 2,900 foreign contractor personnel who were driving contractor-furnished buses and trucks, the ability of the logistical community to meet the requirements of the "war fighters" would have been in doubt. Both contractors and DACs were key team players who contributed mightily to the overall success of ODS.S.

TABLE 3-27

NUMBER OF CASES WHERE FUNCTIONAL AREA SUPPORT WAS PROVIDED DURING CHARLIE PHASE

Maintenance 160 0 14 174 Organizational DS 0 0 0 4 DS 0 0 0 0 0 GS 0 0 0 0 0 0 Depot 15 0 1 16 0 0 12 0 0 12 0 0 12 0 0 12 0 0 12 0 0 12 0 0 12 0 0 12 0 0 12 0 0 12 0 0 12 0 0 0 25 0 0 0 25 0 0 0 25 0 0 0 0 4 4 0 0 0 4 4 0 0 0 4 4 0 0 0 0 0 0 0 0 0 0 0	Functional area	U.S. contractors	Foreign contractors	DACs	Total
Organizational DS 0	Maintenance	160	0	14	174
DS 0 0 0 0 GS 0 0 0 0 Depot 15 0 1 16 ORG-DS 12 0 0 12 ORG-GS 25 0 0 25 DS-GS 5 0 0 25 DS-Depot 4 0 0 4 GS-Depot 8 0 2 10 AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0	Organizational	4		0	4
Depot 15 0 1 16 ORG-DS 12 0 0 12 ORG-GS 25 0 0 25 ORG-Depot 25 0 0 25 DS-GS 5 0 0 4 GS-Depot 4 0 0 4 GS-Depot 8 0 2 10 AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 Class III 0 0 0		0	0	0	0
ORG-DS 12 0 0 12 ORG-GS 25 0 0 25 ORG-Depot 25 0 0 25 DS-GS 5 0 0 5 DS-Depot 4 0 0 4 GS-Depot 8 0 2 10 AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 Class IV 0 0 0 0 Class V 0 0 0	GS	0		0	0
ORG-GS 25 0 0 25 ORG-Depot 25 0 0 25 DS-DS 5 0 0 5 DS-Depot 4 0 0 4 GS-Depot 8 0 2 10 AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 Class III 0 0 0 0 Class IV 0 0 0 0 Class IX 34 0 7	Depot	15		1	16
ORG-Depot 25 0 0 25 DS-GS 5 0 0 5 DS-Depot 4 0 0 4 GS-Depot 8 0 2 10 AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 Class III 0 0 0 0 Class IV 0 0 0 0 Class VII 1 0 0 0 Class VII 1 0 0	ORG-DS	12		0	12
DS-GS 5 0 0 5 DS-Depot 4 0 0 4 GS-Depot 8 0 2 10 AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 18 Supply 52 0 15 67 Class II 0 0 0 0 Class III 0 0 0 0 Class IV 0 0 0 0 Class VI 1 0 0 0 Class IX 34 0 7 41 Fielding 8 0 1	ORG-G5	25		0	25
DS-Depot 4 0 0 4 GS-Depot 8 0 2 10 AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 0 Class III 0 0 0 0 0 0 Class IV 0 0 0 0 0 0 0 Class VII 1 0 0 0 1 1 9 Training 3 0 0 0 3 7 41 <td>ORG-Depot</td> <td>25</td> <td></td> <td>0</td> <td>25</td>	ORG-Depot	25		0	25
GS-Depot 8 0 2 10 AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 Class III 0 0 0 0 Class IV 0 0 0 0 Class VII 1 0 0 0 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0	DS-GS				5
AVUM 3 0 0 3 AVIM 4 0 0 4 AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 Class III 0 0 0 0 Class IV 0 0 0 0 Class VII 1 0 0 0 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0	D\$-Depot	4			4
AVIM AVUM-Depot 14 AVUM-Depot 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 Technical 47 0 11 48 Supply 52 0 0 0 0 0 0 0 0 0 Class II 0 0 0 0 0 0 0 Class IV 0 0 0 0 0 0 Class V 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	GS-Depot				10
AVUM-Depot 14 0 0 14 Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 0 Class III 0 0 0 0 0 Class IV 0 0 0 0 0 Class VI 1 0 0 0 0 Class VII 1 0 0 1 1 Class IX 34 0 7 41 41 Fielding 8 0 1 9 3 Technical 12 0 1 13 13 Installation 0 0 0 0 0 0	AVUM				3
Modification 3 0 2 5 Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 Class III 0 0 0 0 Class IV 0 0 0 0 Class V 0 0 0 0 Class VIII 1 0 0 1 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27	AVIM	•			4
Deprocess 17 0 1 18 Training 32 0 0 32 Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 Class III 0 0 0 0 Class IV 0 0 0 0 Class V 0 0 0 0 Class VII 1 0 0 1 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27		I EV			
Training Technical 32 https://dx.com/distriction 48 https://dx.com/distriction 32 https://dx.com/distriction 48 https://dx	Modification	3		2	5
Technical 47 0 1 48 Supply 52 0 15 67 Class II 0 0 0 0 0 Class III 0 0 0 0 0 0 Class IV 0	Deprocess	L .			
Supply 52 0 15 67 Class !! 0 0 0 0 0 Class III 0 1 0 <td>Training</td> <td></td> <td></td> <td>0</td> <td>32</td>	Training			0	32
Class II 0 0 0 0 Class IV 0 0 0 0 Class IV 0 0 0 0 Class V 0 0 0 0 Class VII 1 0 0 1 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0	Technical	47	0	1	48
Class !I 0 0 0 0 Class IV 0 0 0 0 Class IV 0 0 0 0 Class VI 1 0 0 0 Class VII 1 0 0 1 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0	Supply	52	0	15	67
Class IV 0 0 0 0 Class V 0 0 0 0 Class VII 1 0 0 1 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27		0	0	0	l o l
Class IV 0 0 0 0 Class V 0 0 0 0 Class VII 1 0 0 1 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27	Class III	0	0	0	0
Class V 0 0 0 0 Class VII 1 0 0 1 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27	Class IV	0	0		
Class VII 1 0 0 1 Class IX 34 0 7 41 Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27	Class V	0			
Fielding 8 0 1 9 Training 3 0 0 3 Technical 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27	Class VII	1 1	0		1 1
Training 3 0 0 3 Technical Installation 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27	Class IX	34	0	7	41
Technical Installation 12 0 1 13 Installation 0 0 0 0 Transportation 9 18 0 27	Fielding	8	0	1	9
Installation 0 0 0 0 Transportation 9 18 0 27	Training	3	0	0	3
Transportation 9 18 0 27	Technical	12	0	1	13
	Installation	0	0	0	0
	Transportation	9	18	0	27
	Mode	1 1	0	ő	1
Terminal 1 0 0 1		1			i ' '
Offloading 0 0 0		1			
Bus drivers 0 2 0 2				•	
Truck drivers 0 18 0 18		1	(ſ	

Note: For this table the number of subfunctional cases may not equal the number of functional cases. There are two reasons for this inferst, a contractor may have performed more than one subfunction at a particular location, second, the information we received only indicated that the major function was performed.



SCOPE, PARAMETERS, METHODOLOGY, FOREIGN CONTRACTOR RESEARCH THRESHOLDS, AND STUDY LIMITATIONS

INTRODUCTION

This appendix provides the scope of the study, the parameters that were established, the methodology that we employed, the research thresholds that were applied, and the limitations necessary to the conduct of the study. These features were approved by the Department of the Army (DA) Office of the Deputy Chief of Staff for Logistics (ODCSLOG) subsequent to an in-process review conducted for the DCSLOG on 18 September 1992. They are included as a matter of record for the study.

SCOPE

The scope of this study was defined by the sponsor as follows:

Determine the extent and location of contractor supply, maintenance, and transportation support provided in the Persian Gulf theater during Operation Desert Shield/Desert Storm. Identify who they were, what they did, when they did it, and where. To the extent that time and resources permit, include cost and effectiveness.

To the extent possible, make a similar determination as to the use of DA civilians.

PARAMETERS

The parameters established for this study were as follows:

- Concentrate on contractor and Department of the Army Civilian (DAC) locations, time frames, identification, and missions.
- Address the functions of
 - supply (Classes II, III, IV, V, VII, and IX);
 - ▶ maintenance [organization, direct suport (DS), general support (GS), special repair activity, (SRA), and depot]; and
 - transportation (node and terminal operations).
- Include local and out-of-country contractors.

- Concentrate on buildup phases, D-G day and the G-day cease fire, with an emphasis on the 100-hour ground campaign.
- Include host nation support where contracted for.
- Exclude the functions of services, subsistence, medical, engineering, and minor in-country contracts.
- Exclude legal or doctrinal issues.
- Exclude contractor-versus-"green suit"/organic-organization issues.

METHODOLOGY

To acquire the information required for this study, we used a number of different techniques, including literature reviews, interviews, and questionnaires. The literature reviewed included Army Operation Desert Shield/Storm (ODSS) "after action" reports, "lessons learned reports," contractor records, operating procedures, and historical records. Also, numerous commercial and protessional publications were examined. Appendix B summarizes the documents researched.

Interviews were conducted in person or by telephone with key Army logisticians who held positions during ODS/S. Thirty-three interviews were conducted. Appendix B lists the names and ODS/S positions of the individuals interviewed.

The data gathered from our literature search and interviews were supplemented with data we obtained from questionnaires. Those questionnaires were designed to fill the voids that still existed after the interviews and literature search were concluded. Questionnaires were sent to each of the Army Materiel Command major subordinate commands, to selected Logistic Assistance Officers (LAOs) and logistic assistance representatives (LARs) (who served in Southwest Asia during the operations), and to most of the U.S. contractors who provided personnel. When necessary, follow-on telephone interviews were completed to clarify the information received earlier.

Using the data gathered, a data base was created to serve as the basis for this study. The detailed data base information is contained in Volume 2 of this report. Because of its size, it is published separately. Its distribution is limited.

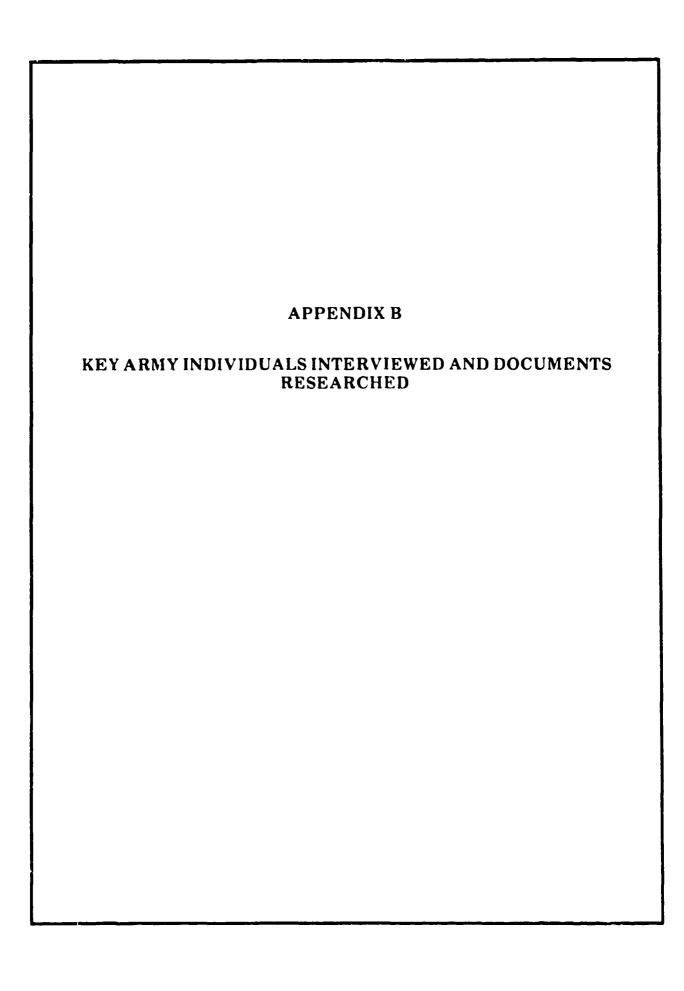
FOREIGN CONTRACTOR RESEARCH THRESHOLDS

During our research of foreign contract files, we encountered a tremendous volume of data. Thresholds for review of the in-country contracts had to be established. Therefore, the following thresholds, supplementing the parameters used to account for U.S. contractors, were established for foreign contractors:

- The value of the contract must be greater than \$100,000. (For example, we eliminated from review contracts for minor local equipment maintenance, e.g., the rewinding of an alternator for a 2 ½-ton truck.) This dollar amount coincided with the amount established by the Army during ODS/S, as the threshold between local and large purchases in theater.
- Contracts must have had personnel involved in managing, moving, or maintaining. [For example, we eliminated from our review contracts for supplies (e.g., batteries, tires, lumber, office supplies, and the provision of rental vehicles without drivers).]
- Contracts for which the delivery of the material was a condition of the purchase were excluded. (For example, the procurement of bottled water with delivery included in the price.)

STUDY LIMITATIONS

As our research progressed, it became apparent that we needed to limit our study effort to satisfy the DCSLOG's objectives. First, we did not include the LAR contribution as part of the DAC effort because we viewed them as both an integral peacetime and wartime facet of the CONUS-based and deployed Army operational units. The LARs were not deployed to perform tasks over and above their normal missions, whereas the DACs we examined did perform missions beyond their normal duties. We should point out, however, that this omission is not intended to cast any doubt on, what by all accounts was judged as, extraordinary performance of duty by all LAOs and LARs. Second, because of the age, complexity, and redundancy of the data available, the accuracy of the information cannot be guaranteed 100 percent. However, the data that were collected and are presented in this report accurately reflect reality. In those instances where conflicting data existed, or different time frames were employed, the data we judged the most accurate were always used.



KEY ARMY INDIVIDUALS INTERVIEWED AND DOCUMENTS RESEARCHED

PERSONNEL INTERVIEWED AND ODS/S POSITION

MG Coburn - DCG, 22d SUPCOM

MG Robison - DCG, 22d SUPCOM

BG Brown - DCG Readiness, 22d SUPCOM and CDR AMC-SWA

BG Guest - DCG OPS, 22d SUPCOM

BG Link - CDR, 16th CSG

BG McFarlin - CDR, 2d COSCOM

BG Monroe - G4 ARCENT

BG Whaley - DCG TRANS, 22d SUPCOM

BG Zierdt - CDR, 1st COSCOM

COL Andrews - G4 1st ID

COL Bartlett - Head of ARCENT Contracting

COL Beauchamp - CDR, 101st CSG

COL Bird - CDR, MFT-SA

COL Bryant - CDR, 82nd DISCOM

COL Eby - CDR, 3rd AD DISCOM

COL Ehlinger - ARCENT Contracting

COL Fousek - CDR, 1st CAV DISCOM

COL Gerald - CDR, 101st DISCOM

COL Hill - DEP G4, ARCENT

COL King - CDR, 24th DISCOM

COL Kirby - ASG-Rear

COL Langenus - CDR, 318th Transportation Agency

COL Lytle - Head AMC LAO-SWA

COL Martinous - CDR, ASG-SWA

COL Metzger - CDR, 1st AD DISCOM

COL Porter - AC of S SPO, 2d COSCOM

COL Ritter - CDR, 593d ASG

COL Shadley - CDR, 1st ID DISCOM

LTC Byrne - DCDR, 711th TRANS Group Provisional

LTC Nemetsky - CDR, F/227 AVIM - 1st CAV

MAJ DeBruyne - MFT-SA

MAJ Radin - CDR, 47th FSB - 1st AD

MAJ Smith - MFT-SA

DOCUMENTS RESEARCHED

HQDA Lessons Learned

AMC Lessons Learned

ODCSLOG Deployment Lessons

ODCSLOG Sustainment Publication

FORSCOM AAR/Lessons Learned

AMC MSC AARS/MSC Forward AARs

ARCENT AAR

22d TAACOM AAR

1st COSCOM AAR

DISCOM AARs

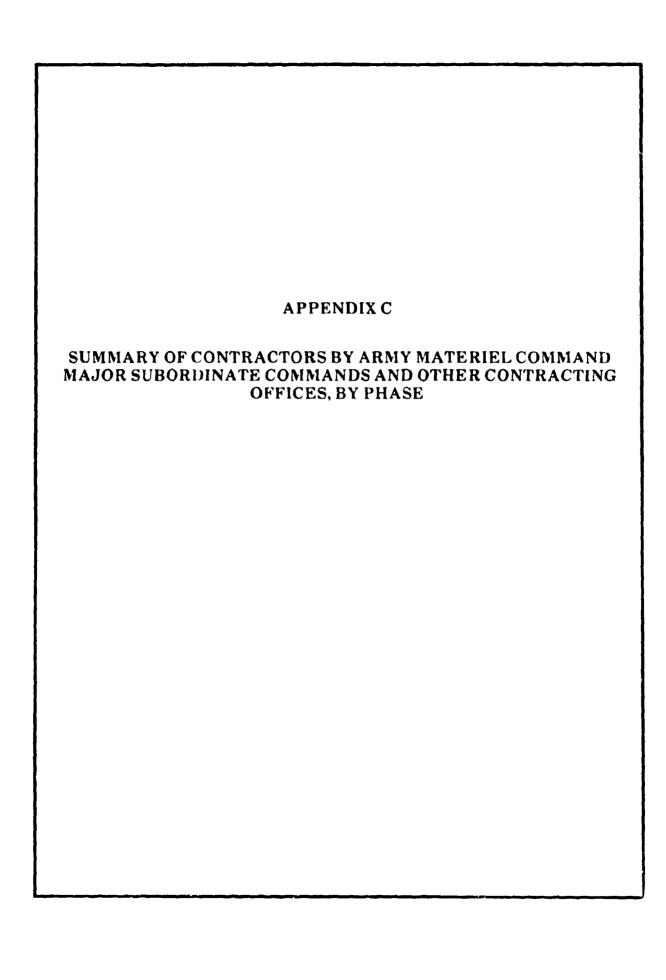
ARCENT Contract Files

XVIII Airborne Corps Contract Files

U.S. Army Center for Military History Files

U.S. Army Center for Lessons Learned Files

Various professional/commercial publications



SUMMARY OF CONTRACTORS BY ARMY MATERIEL COMMAND MAJOR SUBORDINATE COMMANDS AND OTHER CONTRACTING OFFICES, BY PHASE

TABLE C-1

U.S. CONTRACTORS - ARMAMENT, MUNITIONS, AND CHEMICAL COMMAND

!	Initial Phase 8 Aug 90 - 31 Oct 90	Alpha Phase 1 Nov 90 – 15 Jan 91	Bravo Phase 16 Jan 91 – 22 Feb 91	Charlie Phase 23 Feb 91 – 28 Feb 91
Contractors	3	5	3	3
Personnel	6	14	11	11
Functions	Maintenance Modifications Organizational depot Training Supply Fielding	Maintenance Deprocessing Organizational depot Technical training Supply Fielding Technical	Maintenance Deprocessing Organizational depot Technical Supply Fielding	Maintenance Deprocessing Organizational depot Technical Supply Fielding

TABLE C-2

U.S. CONTRACTORS ~ AVIATION AND TROOP COMMAND

	Initial Phase 8 Aug 90 – 31 Oct 90	Alpha Phase 1 Nov 90 - 15 Jan 91	Bravo Phase 16 Jan 91 – 22 Feb 91	Charlie Phase 23 Feb 91 - 28 Feb 91
Contractors	22	23	27	27
Personnel	263	378	499	506
Functions	Maintenance	Maintenance	Maintenance	Maintenance
	AVUM-depot	AVCM-deput	AVUM-cepot	AVUM-depot
	Deprocessing	Modifications	Modifications	Modifications
	Organizational-depot	Organizational-depot	Organizational-depot	Organizational-depot
	Technical	Technical	Technical	Technical
	Training	Training	Training	Training
	Supply	Supply	Supply	Supply
	Ciass IIIP	Class IIIP	Class IP	Class VII
	Ciass IV	Class IV	Class IV	CiassiX
	Ciass IX	Class IX	C'ass :X	Transportation
	Fransportation	Transportation	Transportation	Mode
	Mode	Mode	Mode	Terminal
	Terminal	Terminal	Terminal	1

Note: AVUM = Aviation Unit Maintenance

TABLE C-3
U.S. CONTRACTORS - COMMUNICATIONS AND ELECTRONICS COMMAND

	(nitial Phase 8 Aug 90 – 31 Oct 90	Alpha Phase 1 Nov 90 - 15 Jan 91	Bravo Phase 16 Jan 91 - 22 Feb 91	Charlie Phase 23 Feb 91 – 28 Feb 91
Contractors	7	.8	17	17
Personnel	51	90	96	10:
Functions	Maintenance Deprocessing Modifications Organizational depot Technical Training Supply Class IX Transportation	Maintenance AVIM Organizational-depot Technical assistance Training Supply Class IX Technica: Training Transportation	Maintenance AVIM Organizational-denot Technical assistance Training Supply ClassiX Technical Training Transportation	Maintenance AVIM Organizational-depot Technical assistance Training Supply Class - X Technica Training Transportation

Note: A2 M = Aviation intermediate Maintenance.

TABLE C-4
U.S. CONTRACTORS - FORT HOOD

	Initial Phase	Alpha hase	Bi avo Phase	Charlie Phase
	8 Aug 90 - 31 Oct 90	1 Nov 90 - 15 Jan 91	16 Jan 91 — 22 Feb 91	23 Feb 91 – 28 Feb 91
Contractors		١	. 1	. 1
Personnel	40	40 ،	40	40
Functions	Maintenance	Maintenance	Maintenance	Maintenance
	AVUM depot	AVUM-depot	AVUM depot	AVUM-depot
	Suppiy	Supply	Supply	Suppiy
	Class IX	Class IX	Class IX	C ass IX

TABLE C-5
U.S. CONTRACTORS - MISSILE COMMAND

	Initial Phase 8 Aug 90 ~ 31 Oct 90	Alpha Phase 1 Nov 90 - 15 Jan 91	Bravo Phase 16 Jan 91 – 22 Feb 91	Charlie Phase 23 Feb 91 ~ 28 Feb 91
Contractors	5	9	. 3	9
Personnel	20	36	38	38
Functions	Maintenance Organizationa idepot Trainir g	Maintenance Organizational-depot Training	Maintenance AVUM-AVIM Organizational-depot Training Technical assistance Supply	Vaintenance AVUM-AVIM Organizational-depot Fraining Technical assistance Supply

TABLE C-6

U.S. CONTRACTORS - TANK AUTOMOTIVE COMMAND

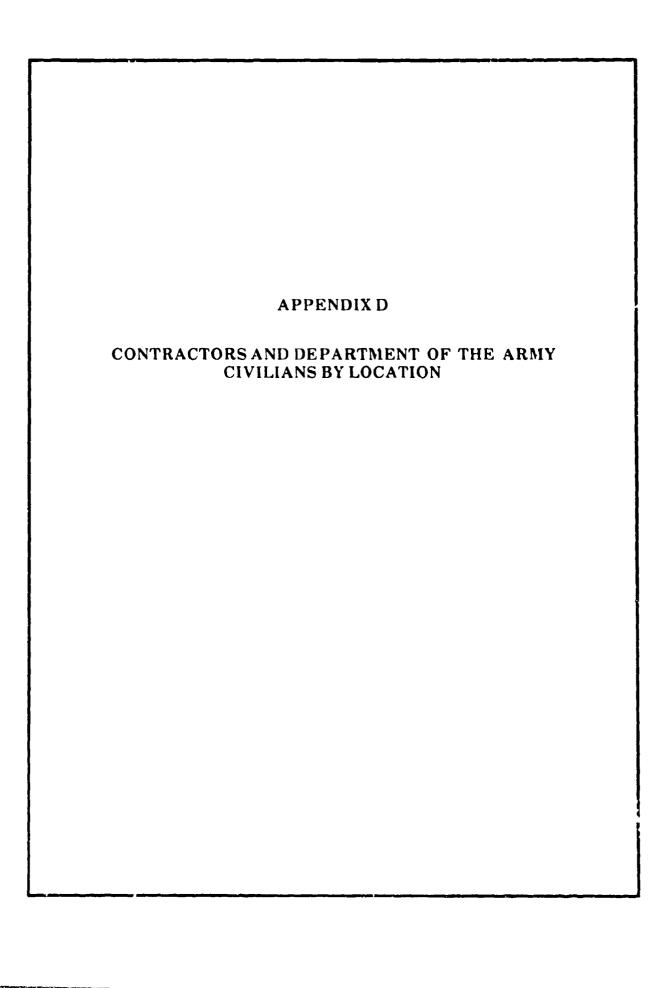
	Initial Phase 8 Aug 90 – 31 Oct 90	Alpha Phase 1 Nov 90 - 15 Jan 91	Bravo Phase 16 Jan 91 ~ 22 Feb 91	Charlie Phase 23 feb 91 – 28 feb 91
Contractors	4	13	15	15
Personnei	142	241	265	275
Functions	Maintenance Organizational-DS Technical assistance Supply Class IX Transportation	Maintenance Organizational-depot Technical assistance Deprocessing Training Supply Class IX Technical Training Training Training	Maintenance Deprocessing Modifications Organizational-depot Technical assistance Training Supply Class IX Fielding Technical Training Transportation	Maintenance Deprocessing Modifications Organizational-depot Technical assistance Training Supply Class IX Fielding Technical Training Transportation

Note: DS = Direct Support

TABLE C-7

FOREIGN CONTRACTORS - ARMY CENTRAL COMMAND, XVIII AIRBORNE CORPS ARMAMENT,
MUNITIONS, AND CHEMICAL COMMAND

	Initial Phase 8 Aug 90 - 31 Oct 90	Alpha Phase 1 Nov 90 - 15 Jan 91	Bravo Phase 16 Jan 91 — 22 Feb 91	Charlie Phase 23 Feb 91 - 28 Feb 91
Contractors	10	20	.9	18
Personne1	883	2,465	2.937	2.925
Functions	Maintenance Technical Training Supy CrassiX Transportation Busidrivers Fruck drivers	Maintenance Technical Training Supply Class X Transportation Bus drivers Fruck or vers	Transportation Busid vers	Transportation Busidrivers Truck drivers



CONTRACTORS AND DEPARTMENT OF THE ARMY CIVILIANS BY LOCATION

Through a series of tables, this appendix shows the contractors or Department of the Army Civilians (DACs) who provided support at each fixed location, organizational location, or Corps Rear/Theater Army area by phase. The tables are ordered by phase. Table D-1 lists all of the tables. Table D-2 contains the description of each abbreviation found in the report header. For Tables D-3 through D-7, D-9 through D-13, D-15 through D-19, and D-21 through D-26 show the following information:

- The locations from which the contractor or DAC support was provided during the phase.
- The contractors who provided support at each location. This is only shown on those tables involving contractors.
- The number of permanently and temporarily stationed U.S and foreign contractors at each location. This is also only shown on those tables involving contractors.
- The number of instances that a functional area was performed by the contractors or DACs at the location.
- The number of permanent personnel broken down by functional area.
- The number of temporary personnel broken down by functional area.

Tables D-8, D-14, D-20, D-22, and D-26 are summary tables for each phase; they display the same information shown in the other tables except they do not list the contractors. Each table uses the same format.

TABLE D-1
LISTINGS OF TABLES

Table	Title
Table D-2	Abbreviation Descriptions
Table D-3	Initial Phase - Contractors at Fixed Locations
Table D-4	Initial Phase – Contractors at Organizational Locations
Table D-5	Initial Phase - DACs at Fixed Locations
Table D-6	Initial Phase – DACs at Organizational Locations
Table D-7	Initial Phase – Contractors in Rear Areas
Table D-8	Initial Phase – Summary
Table D-9	Alpha Phase - Contractors at Fixed Locations
Table D-10	Alpha Phase ~ Contractors at Organizational Locations
Table D-11	Alpha Phase - DACs at fixed Locations
Table D-12	Alpha Phase - DACs at Organizational Locations
Table D-13	Alpha Phase - Contractors in Rear Areas
Table D-14	Alpha Phase – Summary
Table D-15	Bravo Phase - Contractors at Fixed Locations
Table D-16	Bravo Phase - Contractors at Organizational Locations
Table D-17	Bravo Phase - DACs at Fixed Locations
Table D-18	Bravo Phase - DACs at Organizational Locations
Table D-19	Bravo Phase – Contractors in Rear Areas
Table D-20	Bravo Phase – Summary
Table D-21	Charlie Phase - Contractors at Fixed Locations
Table D-22	Charlie Phase - Contractors at Organizational Locations
Table 0-23	Charlie Phase – DACs at Fixed Locations
Table D-24	Charlie Phase - DACs at Organizational Locations
Table D-25	Charlie Phase - Contractors in Rear Areas
Table D-26	Charlie Phase - Summary

TABLE D-2
ABBREVIATION DESCRIPTIONS

Abbreviation	Description
FIXED LOCATION	Number of fixed location where support was provided
ORGANIZATIONAL LOCATION	Name of the organizational location where support was provided
SUB-ORGANIZATIONAUFIXED LOCATION	Specific activity at the fixed or organizational location where support was provided
CONTRACTORS:	
UNITED STATES (U.S.) = (P)	Number of contractors permanently stationed at the location providing support
FORE GN (FN) = T)	Number of contractors temporarily stationed at the location providing support
FUNCTIONS PERFORMED	
MAINT	Number of it stances where maintenance was performed at the location. An instance can be either permanent or temporary support.
SUPPLY	Number of instances where supply was performed at the location
TRANS	Number of instances where transportation was performed at the location
TOTAL	Total number of instances where support was performed at the location
PERMANENT PERSONNEL.	
MAINT	Number of personnel who were permanently stationed at the location providing maintenance support
SUPPLY	Number of personnel who were permanently stationed at the location providing supply support
TRANS	Number of personnel who were permanently stationed at the ocation providing transportation support
*O*A.	Total number of personnel who were permanently stationed at the ocation providing support
TEMPORARY PERSONNE:	
MA'NT	Number of personnel who were temporarily stationed at the location providing maintenance support
SUPPLY	Number of personnel who were temporarily stationed at the ocation providing supply support
TRANS	Number of personnel who were temporar ly stationed at the ocation providing transportation support
*O*At	Total number of personnel who were temporarily stationed at the ocation providing support.

Control Cont						20 20 478 14	TABLE D-3	7.3 AY 61Y6	1	3		 	-				:
The control of supervision Commercial					-					-	-		-		-		
National State Nati			CONT	ACTORS		AC CALL		: · <u>ç</u>	-		- 30 55			12,000		COMME	:
Author (1 state 2 stat	FIXED LOCATIONS	SUR-ORGANIZATIONAL/FIXED LOCATION	} ~	<u> </u>		AINT SUPPL	Y TRANS			MI SUPPL	Y TRAN			IN SU	P.Y	RANS	TOTAL
Anthree Market Company (Company Company Compan	At JUNITY JAE	TAMP B.ISH	7	0	0	7		0	5	35	٠	0	ı .	0	0	o`	
A 17 grant, part A MA Control (Special Security Media Special Security Media Special Security Media Media Special Sp		Hone well Military Avkonics Division	_			•				•							
A 15 Pinning To A 15 Pinning T		Johnson Controls Workt Services, Inc.	_										_	•			
M. D. Activation of the Control of Executives Systems (2) A. E. Simmer M. A. A. A. C.		Martin Martella Corporation				••		•		•	:	•	:		•	•	
A LE JETTON, THE A CONTRIBUTION OF A LEAST CONTRIBUTIO	· ·	McDannell Dauglas Electronic Systems			-	. .											
A LESTING THE NATIONAL STANKED CONTURING (2) A CONTROLL OF THE NATIONAL STANKED (2) A CONTROLL OF THE NATIONAL STA		-					-			. 	: :					· - •	
A 15 Thing the NA MA Constraint A MA CONSTRAIN										•		:					
Commod Designation of the Properties of the Pr		女之	4	· ~ ·	0	'د	4	·~	Ξ	ኤ.		<u>-</u>	Ξ	ာ	· 0	0	_
Montreal Parameter Note		General Dynamers Services Company (2)									• -						
The first of Excelling The first of Excell		Pentestor (Hetronics, Inc.		• •	-	• ;	-	•		•·-•	•	•	:		-	•	
Interest the transfer and Interest that Interest the transfer and Interest the		Faxifical Lycoming			_	• • •				<u> </u>	. :						
NCMC RECK NCC		Inysem Henschel	· —-	:	-	•						: -•	-	_ ·	· - •	•	
NA NA NA NA NA NA NA NA				:		:.	٠.			۰.				-,	•		
Sub-Rock		ACMB RXC	-·	o.	<u>:</u> 5	<u>-</u> ·	٥.	o.		_•	: o:	o*·		٥.	oʻ	⊃'	-
NA WITCH BUTCH Fingments Inc. NA WITCH BUTCH STRUME STRUM		כנושכ	:				:	•		-	:	• •			. <u>‡</u> .	:	:
MA Willting Buller Engineers Inc. NA Carter of Buller Engineers Inc. NA Carter of Buller Engineers (Inc.) Although Rochard Missie Group William Food Shall (Inc.) Although Rochard Missie Group William Scarter Missie Group		SUB IOIAL	2	-0	0	9	4	2	12	ē	1/		12	0	0	0	
NA Willians Buthal Engineers, Inc.				-	-		:		<u> </u>				_				
Williams Buthar Fingments, Inc.				-	-			-	-	_	-		1		-	1	
NA Williams Bullet Fingmosts Inc. NA Cereard Dynamic Strong Bytelon 5, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0,	A LUKE IN	٧Z	0	- -	=	-	-	_	7	0	0		히	-	0	-	
NA General Dynamics Land Systems Division General Expression Systems Division General Expression Systems (2) General Expression Systems (2) A/5th Court Missile Systems (2) A/5th Court SAA STO O O O O O O O O O O O O O O O O O O	307-2°	Wilthos Butter Engineers, Inc.		:			- •			-	: -				:		-
NA NA CHANGE DEFICIENTS LONG Systems (INVISION CHANGES TO CHANGES STATES (INVISION CHANGES TO CHANGES STATES (INVISION CHANGES TO CHANGES SYSTEMS (INVISION CHANGES SHIPS CHANGES SYSTEMS (INVISION CHANGES SHIPS CHANGES SYSTEMS (INVISION CHANGES SHIPS CHANGES TO CHANGE					-			- ; -	-	· ·-•		: •-		٠.	•		
Carker Dynamics to and Systems Division Stripe Stri			•	•	٠.	;		• • •	· · ·	- : :		۰.		٠.	- c	-*6	:
Systems (2) 10 0 0 0 1 1 3 0 0 0 0 1 0 0 0 0 0 0 0 0	AS upilido SA	٧.	<u>.</u>	o ·	o	۰٬۰	o	o:	ō-	⊇'	i	o -	⊇;	<u>.</u> .	ō.	ò.	•
Systems (2) 10 0 0 0 1 1 1 3 0 0 0 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0		CARTAR Dynamics Land Systems Division	•	• • •	_		. .	i	· 	- i -	i •-	:			:	-•	
No Systems (2) 1 0 0 0 0 1 1 3 0 0 0 0 0 0 0 0 0 0 0 0		CARAMON CONTROL MOTOSCOCO				·-						:	:	:	:		:
Corporation 1 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0		April Control of the				:	•			•			-		• • -	-	
Corporation 1. 0. 0. 0. 0. 1. 0. 0. 1. 0. 0. 1. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.		Raytheon Corporation Missile Systems (2)	:	••		: :-			-	- -	: -•	:	<u>:</u> _	•	 ·		-
Corporation 1 0 0 0 0 1 1 0 0 0 1 1 0 0 0 1 0 0 0 0							:	• •				:					!
Her Engineers Inc. 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0	20	475th Quarter Master Group	·_·		0	· , • ·	:		n.	0	: o :	~	~	0	Ö	ō.	-
ald (ngineering Corpovation 1 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0		Willtwos Butter Engineers, Inc.		:	-	•	:	:	; 	:	:	:	<u>.</u>		-:	•	:
#1 1 0 0 0 0 0 0 0 0		♥G MOUSU	•-	·c		•-]c	-i.	- -	•	i c	: c		Ċ	ō	···ō	'
Cognoposing Corporation 1 0 0 0 1 1 0 0 2 13 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		SERV AIR INC	.· 	· ·	,	.:		····		, - -	: :		<u>!</u>	•	•	•	:
Cogneesing Corporation 1 0 0 0 1 1 0 2 13 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						:		•		:	· -	- -	· -		•	• - :	:
Cogneosing Corporation 19 0 0 0 19 4 0 23 162 48 0 210 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Rombxiw SRA #1		· ɔ	! '0	:_'	· ·_	· 0	.~	2	: 	0	4	·o·	ō	ю.	. ~ : :
Sentice Inc. Senti		Manifech Field Engineering Corporation			•	• .	:			· • - •	:				+ · · ·		:
Cros Sentice Inc. Text Sentice			·:	٠.		•	:•				:			:	- • · ·	- 1 6	. •
Beat Helicophar anticonal designation inc. Board Helicophar anticonal control of the Cophar Cophars Country Copharation		JAMP COWORD	<u>→</u>	o, o,	5-	2'		٥.	2		8		2	5 `	o;	ο.	
Boalt (Herk Cohears) C Owlind Controvation		BARCH AGUSKKKO SONICO, INC.		•	<u>.</u>	:	:	-•	:	-•	-•-				•	•	
COMINO Corporation				•		•			-	- .	:			••	· ·	:	:
		COMEO Correspino			-		•	•		 -	· -		:		→-	:	

	-		1ABLE D-3 INITIAL PHASE - CONTRA CTORS AT FIXED LOCATIONS	TABLE D. CONTRACTORS	AT FIXED LO	CATIONS	; ; !	 	-	• -	· · · · · ·	
		2		FUNCTIONS PER DRINED		&			 +	TEMP		
FIXED LOCATIONS SUB-ORGANIZATIONAL/FIXED LOCATION	- 1		MAINT SUP	SUPPLY TRANS	TOTAL	MAINT	SUPPLY 1	TEANS	TOTAL	MAINT	SUPPLY TRANS	TOTAL
Cervina Parthe Company	:		:			→ . :		-4 :		•	÷ -	
Consorti Instruments						.i		-		 ! !	:	
Hong pwell		•	 	· .	:	· · ·		• -•		• · · • •		. :
HOWER						-•	. .	- -	:			
11:		:					:	• -		• - •	·• ·	
Mc(Xinnell Louglus Helicopter Company	Company		 			i !	• -	· - • i	:		:	
Nextbook Datose in Haircofe Composity	>		: ·		-	:		· •	:			
Somower			!	•	. :	•	•-•		• • • • • •	• •	·	
Scientific Alkaniko	:	 		• :	:	+	·- •		:	٠		
Sikorsky Alicerati Onlskon		-•	•			 -		-	1	:		
TOSK FUSSOCIONAL PROGRAMA	* =			:		. .	; :	: :	1 :		• • • • • •	
14 21 H179		27 1 (8%	ý	55	101	8	2	242	-	- C	
10.0.035				,			l					
							-	- I'	+	,		
√A NA		3	9	-	0	23	_	0	3		- ' 	
(3)E Covernment Systems Corporation McD single Douglas Helicopter Company	poration r Company					i	- 1	· · · · · · · · · · · · · · · · · · ·				
Ruytheon Corporation Missle Systems	Systems		: .	· ·		1	⊢ ∔ :		: :	•	:	:
SCIAV-AIR INC	:				:	!	. <u>+</u> -	<u>.</u>	:	•		
Williams Buller Engineers Inc.	<u>.</u>	•	:			+ -	• •			. :	• •	. :
•					-+	- 		- : -			 -	•
F-1 A/B SA NA		0 1 0	1	0	0	ō	ō	0	0	-	0	
	non						-	- - -		••	† 	-
	-	•	•	•		:	- 				•	
CONTRIBUTION OF NA		0 ا 0	1	0	2	ō	ō	ö	ō	0	0	
Willthos Butter Engineers, Inc.	-		•	• * * * * * * * * * * * * * * * * * * *		!	+		:	:		
		•	:	:	+	!	+	-+- ·		•		:
NA NA		2 2 0	0 3	0	1	2	0	o	2	=	0	$\ \ $
	porution					-				- •-		
Raytheon Corporation Missile Systems (2)	Systems (2)	•	•		:	- <u>+</u>	- 1 -	÷	:	• •	:	1
Willty'os Buher Engineers, Inc.		:-		•		i i		+		·• ·	: -	:
				•			-	· -	:	•		:
Person NA		0 -	1 0	ō	-	0	0	٥	9	-	0	
Mk:Donnell Dxsugics Electronic Systems	Systems		-			_			-		-	

			: :.		INITIAL	TABLE D-3 INTIAL PHASE - CONTRACTORS AT FIXED LOCATIONS	TABLE D-3 NTRACTORS	S AT FIXED	LOCATION							
		CON	TRACTORS	Č		:				: 		:			-	
		:5	3	r.	:	FUNCTIONS PERFORMED	PERFORME	:		PMANENT	PERMANENT PERSONNEL			TEMPORARY PERSONNEL	ERSONNEL	
FIXED LOCATIONS	SUB-ORGANIZATIONAL/FIXED LOCATION	•		-	NA.	MAINT SUPPLY TRANS	TRANS	TOTAL		SUPPLY	MAINT SUPPLY I TPANS	TOTAL	MAINT	MAINT SUPPLY TRANS		TOTAL
				- :		- 	!			-				-		
1,31Ai	וניואנ	4	2	_		51	3	_	326	7	= -	425	` 	Ō	4	11

EXED LOCATIONS OF		CONTRACTORS		-	_	-		•		
		Š					•	•		
\ 		22 -	FUNCTIONS PERFORMED	1	PERMANENT PERSONNE	PERSONNEL	101	TEMPORARY PERSONNEL MAINT STEEPS TOAKS	PERSONNEL	
	ct c'A''			╁	-10		¥¥	14	1.	
	Bash Healk's colear Lauttoon Its.	, ·					i i	:		
	Continued Departures Southern Commence (2)						!	:	•	
	(315 Resembled Systems Corporation				:		:	-	. : :	
•	Control of Street, Str				-	•		•	:	
	CONTRACTOR STATE OF S			: : :	· ·				:	
	Pendasore extrones inc			:	1	:	:		:	
	lexhon (yeoming		-		:	-			→	:
					-	-	:		•	
	•	-•	•			:	:		- - -	
-	11th ADA BDE	0 0 0 7	2 0	~ .	2	0	7	0	o'	<u>o</u>
	Raytheon Curporation Missle Systems (2)									
,					i		-		. 	
	:				· · · · · · · · · · · · · · · · · · ·	_	:			
21	12th AVN 8036	0 0 1	0	·	ò	0	C	0	0	-:
	Balt Hollecepter Textremine		:				!	•	•	-
. ,	:							: :		
				; ;						
ָם. סו	101st AAD	0 0 1 1	2	0	2	0	6	•	0	-
	Seal Holicopter Textron Inc.								_	_
	General Dynamics Service Company	-								-
				 : -			-	•		
	:	, ,	: ::	· ·	:			;	∵. 	
	CATI MI BN	o	0		ร: ส*-	⇒'- ! 	ο; ;	٠	د	5.
	POIOTHOC IMPROPRIET	:		-	 	!	:			•
	:			_	; ;	·	:			:
	CI 144C	٠.٠	:		ō	~c	:		†c	· C
	Control of the second s	· · · · · · · · · · · · · · · · · · ·	,	: -	•	1_	:		•	
	CLASSICAL TONORING CONTRACTOR CONTRACTOR				•	:		· 	:	:
			•		:	•	::			
	Perotrator Fertinolity (pc)		: .	:		· · · · · · · · · · · · · · · · · · ·		:	• - •	
	September 1					:				-
				<u> </u>	:				:	!
		;			· •	:	:	•	:	
. č	and ACR	2 3 0 0		- 0	9	0			o	4
	Roal Houles with Townson (Oc.	:		:		-			<u>. </u>	
	Character Data missing Conference (2)	•			:	-	İ	•		
,	Penicotor (awriteness Inc.			•	:	• ! ! !	:	•	•	
	Teatron Lyconning				<u> </u>	i :		!	•	
•	•			 ·	:	 ! !-		· - -		
.Ē	OTHE?	0 0 0	· e	-₩	ō	5	0	•	°õ	•
	DyrCorp								•	
	Manifech flektitingineering Corporation		-4		-	- -			• •	
	McOonnell Dougks Hallcopter Compony									

							TABLE D-4										_
				, EN	I PHASE .	CONTRAC	INITIAL PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	GANIZATIC	NAL LOCA	ATIONS	•						
			A	 '8			-i - 	.i.	:					:	:	1	
		5	2 22	. E		UNCTIONS	FUNCTIONS PERFORMED		, &	PMANENT	PERMANENT PERSONNEL	-		TEMPORARY PERSONNEL	PERSONNEL	!	
IXED LOCATIONS	OPGANIZATIONAL LOCATION	•		-	MAINT	SUPPLY	MAINT SUPPLY TRANS TOTAL	TOTAL	MAINT	SUPPLY	MAINT SUPPLY TRANS	TOTAL	MAINT S	SUPPLY	SUPPLY TRANS	TOTAL	
					:		:		i	:				i		:	
ě	•	:	. 6	:0	<u>ة.</u>	. •		.33	:		16	16	7	1	¦O	21	

					NEW PRA	TABLE D.S INITIAL PHASE - DACS AT FIXED LOCATIONS	1 FIXED LOC.	ATIONS						1	:
		COMIRA	TRACTORS				!					•	+	:	
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	2 -	<u> </u>	Z -	FUNCTIONS PERFORMED MAINT SUPPLY TRANS	ONS PERFORME PLY TRANS	TOTAL	MAIN	PERMANENT PERSON	Z 2	TOTAL	TEN	TEMPORARY PERSONNEL		TOTAL
Atru Ohuth UAE	TAM? Base		.			<u>.</u>	0	2	2	0	4	0	0	C	0
Ad Osmindin, SA	ASC: SWA		,		<u> </u>	<u>-</u>	0	~	100	0	0		io	• o	0
DEKINING SA	IAMP Forward		• • • •				o	0	60	6	2	6	0	o	6
	<u> </u>	: c	` 'c			: : : : :	ic.	12	<u> </u>	0	30				

				TABLE D-6			:		-		:
	-		INITIAL PHASE - C	INITIAL PHASE - DACS AT ORGANIZATIONAL LOCATIONS	ATIONAL IC	CATIONS	-				Ī
				-•		:	!		:	- † ·	;
		CONTRACTORS					-:				1
		S SS FN		FUNCTIONS PERFORMED		PERMANEN	PERMANENT PERSONNEL		TEMPORAIN	PERSONNEL	
NOTA DO LOSAIS	OPCANIZATIONAL LOCATION	- 4 - 4	MAINT	MAINT SUPPLY TRANS TOTAL	TOTAL	MAINT SUPPLY TRANS TOTAL	TRANS	TOTAL	L MAINT SUPPLY TRANS TO	TRANS TOTAL	TOTAL
VV	VV		0	c ·	c	o	o.	0	o	oʻ	0
-						:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	:	- • ,	; -;	-
4	NI DI	:o	0	0	0	0	0	o	0	0	5

FIXED LOCATIONS ORGANIZATIONAL LOCATION NATIONAL AND ALKNOWED ALT WITH CONTROL PORT ALT WITH ALT ALT ALT WITH ALT ALT ALT ALT ALT ALT ALT ALT ALT ALT	AL LOCATION AL KNASUR (S) FOR THE SI	CONTRAC US US	ATTA	I PHASE -	INITIAL PHASE - CONTRACTORS AT CORPS REAR/THEATER ARMY AREA	000 AT CO	000000	** ***							
	AL LOCATION A) KNASQUEST	E 37 " I					TS REAK/	HEATER AN	MY AREA			_			
	AL LOCATION AL KINAGOR (S) PROPERTY	Z 33 " I		·				:		::	:		•		-
	AL LOCATION AL ROCATION FOR PART (S)	0 0			FUNCTIONS	FUNCTIONS PERFORMED	:		PERMANENT PERSONNEL	PERSONN	13		TEMPORARY PERSONNE	FISONNEL	-
NA ACCESSED A MAN ANK ALMANDAL CONTROL ALMANDAL CONTROL ALMANDAL CONTROL	A Khesdari Est Prochesa	oʻ		MAIN	T SUPPLY	TRANS	TOTAL	MAIN	MAINT SUPPLY TRANS	TRANS	TOTAL	-	MAJNT SUPPLY	TRANS	TOI
Andelsha M. Ankalan Carlos Al Mayor Carlos Al Mayor Ganera Anescon Peparen	ALIKPOJUH (SI		>	0	0	0		6	ō	0 882	12 882	0	0	Ö.	_
ALMADAT CANTO	Dat. Mark	,		· 										•••	
ALWowle, General Anergon Physiaer	•								:	! !	-	:		- •	
Active is one Physicism	ACM Servicios				. ;								!		:
	SHOT LINES							_	-	:	٠ ؛ ن ــــ	:	:	:	
Fortest Lines					;	: :		:	_	! 	<u> </u> 	<u></u>	:	:	:
Chilf Becode Ent					:						-			-	
Recition At Countries 53	31,364 6.57			_						:					
Security Security				_				_	:	-			:		
COURNERS						:		· 	-•	: !					٠
		· c	٠.	·	٠.	;°		:	→ _c	0	23 882	- -~	!		

					-			TABLE D.8	8			''						: 	\Box
		.					AT N	NITIAL PHASE - SUMMARY	SUMMA	ځ									٦
			MIRAC	RACTORS			1	•			- •	1						<u>.</u> -	
		3	22	Z	E		UNCTION	FUNCTIONS PERFORMED	VED	-	PE 34	WANENT P	PERMANENT PERSONNEL		-	EMPORAR	TEMPORARY PERSONNE	4 1	
LOCATIONS	CONTRACTORS/DACS	•	-		-	MAINT	SUPPLY		TRANS TOTAL	=	MAINT	SUPPLY TRANS	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	
CiX	CONTRACTORS	7	2	-	٥	5.		=	_	71	344	70	=	475	9	,	0	9	Ξ
CR. ANIZATONAL	CONTRACTORS	~	7	'ဂ'	0	`&'	: ایر	'c'	: 	33	83			<u>ة</u>	<u>.</u> :	·_·		· :	<u>=</u>
	SU3-TOTAL		24	:	0	2		: . <u>≎</u> .	œ.	<u>\$</u>	427	77.	.2	919		: !		٠.	32
			:	•					:		•	•						. • .	
SIX!	DACE	.0	· o	.0	:0		:	· •	٠.	- 0	2	.20		. ন :		.0	···o·	-: 6·	0
OBCANIZATIONAL	. DACs	<u> </u>	ာ	: o :	<u>.</u>	J	· · ·	ъ.	0	0	· o ·	o.	:		-	0	·o'	<u>ن</u> -	0
	SU3-TOTAL	- 	. 0	.0.	:0	1.7	٠		.0.	· •	.2.	<u>-</u> ∞:		.es.	.8.	:	. o.	'::o'	0
			:	• •					:		•	•	•		:			- .	_
COSS REALL	CONTRACTORS	. •	· o ·	۰۰.	6		:	·c·	٠.	- -	°o'	;o;	885	982	<u> </u>	٠٠.	٠٠.	·	0
infall Rabby AREA		•			- -	:	:	<u>.</u>	;		• •		:		· ·	:			
10 1A L	IOIAL	53	24	10	<u>-</u> 0	8		- i.z	- '1	110	439	8	804	1428		88.	· · · ö	. 4	3

10 10 10 10 10 10 10 10				TABLE D.9 ALPHA PHASE - CONTRACTORS AT FIXED LOCATIONS	TABLE D.9 NTRACTORS AT FIX	(ED LOCA)	IONS				:		•
Name Sub-concaving Sub-c			2					:	:	• •=	•··-	•	:
March Matter Accorded Control State	NOTATION OF STREET	MOHADOL GENERAL TENDITATIVA DE CARLO	2 - 2 -	FUNCTIONS MAINT SUPPLY			PERMANE!	NT PERSONNEL	TOTAL	TEMPO	DRARY PER		TOTAL
Virtual Market Virtual School Virt	Abu Chots, UAF	TANIP-BUSH	0 0	9	0	┝	10	5	33	la	0	٦	ľ
Matter Contract Contracts		Honeywell Military Avionics Division					· • • •		-	• •			
Muchanial Couples Retirent Systems Muchanial Couples Retirent Systems Muchanial Couples Retirent Systems Muchanial Couples Retirent Systems Muchanial Couples Retirent Systems Muchanial Couples Retirent Systems Muchanial Couples Retirent Systems Muchanial Couples Retirent Systems Muchanial Returning Muchanial Couples Returned Systems Muchanial Returned Systems Muchanial Couples Returned Systems Muchanial Ret		Johnson Controls World Shavices, Inc.		:	•	-		•	-		· · •	· •	
Michael Bounds Herchael Systems Michael Bounds Herchael Systems Michael Bounds Herchael Systems Michael Bounds Herchael Systems Michael Bounds Herchael Systems Michael Bounds Herchael Systems Michael Bounds Herchael Systems Michael Bounds Herchael Systems Michael Bounds Herchael Systems Michael Bounds Herchael Systems Giranged Dynamics Land Systems Giranged Dynamics Land Systems Michael Bounds Herchael Systems Mi		Martin Marietta Corporation		:		_	•	. :	 : :	•	. . .	•	!
New York March M		McDonnell Douglas Flectronic Systems				_		!		•		:	:
M. A. Weezen, I.U. General Divisions, Services Corricory (2) Inystein Heriochael Mr.T. St. Antomatical Resources Systems General Divisions Systems General Divisions Systems General Divisions Systems General Divisions M. M. St. SMA Antomatical Resources Systems General Divisions General		McDonnell Douglas Helicopter Company 18 Alabeita Latera Head Company				_	:			• •	- :-		:
NA MASSIGN LED NA MASSIG				•	:			•·-				• -	:
A MASSORI LID General Dynamics Servicins Centrolary (2) Inystein Herican's Servicins Centrolary (2) Inystein Herican's Servicins Centrolary (3) Institute Company (4) Institute				•				• -		-	• · •	•-	:
A Mexican Library (2) Granted Physical Extractory (3) Frystaen Hancerbay Meff Sta Automorbid four-water Systems Find Colgociation Granted Systems (2) Granted Systems (2) Find States (2)	Ad Dominam, SA	NA.	2 0 2	• ♥	3.	0	: :8:	13:	77	· oʻ	· o	- 6	
Paysen February Sonk to Controlary (2) Paysen February Sonk to Controlary (3) Paysen February Sonk to Controlary (3) Paysen February Sonk to Controlary (4) Paysen February (5) Paysen February (6) Paysen February (7) Paysen Feb		Au Marsam LTD								•		-	:
Maritimate Mar	-	General Dynamics Services Corribany (2)			:			:	:		- 	- •	i
Lortror Lycoming 1 0 0 0 0 0 0 0 0 0		inyssen rienscha	!				•••		:		- . -	.	
Met SA	,						•	!	:	•	•	-	:
Funtion Excending Funtion Excending Function Examples Funtion Examples Function Examples Function Experiment Function	•	ASC; SWA			.0	-		o	~	· o ·	·	0	
MFT SA Automated flustrators Systems Automated Ususurors Systems General Operators Systems General Ususurors are serviced to systems Automated Ususurors Incompany (2) For Company Incompany (2) For Company Incompany (3) For Company Incompany (3) For Company Incompany (3) For Company Incompany (3) For Company Incompany Incompany (3) For Company Incompany Inco		Textron tycoming	: :		· :	-	• • •				•		
MFT SA Automotive flux-union Systems FAC Corporation General Divinion is systems FAC Corporation General Divinion is systems FAC Corporation General Divinion is systems FAC Corporation FAC Corporation General Divinion FAC Corporation FAC			•	•	- :		:-	_ •	•	•	-÷	 -	:
Automated Nuswey Systems Georgia Dynamics and Systems Georgia Dynamics and Systems Georgia Dynamics and Systems Georgia Dynamics and Systems Georgia Dynamics and Systems However the Struck's Inc. Farthor Lycoming Farthor Lycoming For the Systems NA NA But Helecother leating his Georgia Dynamics Land Systems Division Clandard Dynamics Land Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems William Data Systems		AS 13M	0	- GO	.0	<u>E</u> 1	. <u></u>	:	· Q	.0	•c	- - -	:
FMC Corporation General Dynamics and Systems G. Edelous Systems G. Edelous Systems Dynamics G. Edelous Systems Highes Auricat Company (2) Punitation Estimates the Feature of the Fe		Automostud Duscu neth Sustaines	· · · · · · · · · · · · · · · · · · ·	· ·					-	•		• -	
General Dynamics and Systems CE Delicase Systems Division Explores Systems Division Highes Alecand Company (2) Punicistra Electron Lycoming Include Ele	_	FMC Corporation	•		·- : :	-	• · · ·	!	:	•	:		-
Cit Asio Cit Asio C & Definition to Definition 1 Hundrablar Execution Company (2) 2 Punituation Execution Company (2) 1 Punituation Execution Structures and Eventuality 1 I AC MIS REC 1 CCL Inc. 1 Sug FOTAL 13 I A But Helecopter Teatron Inc. 3 Carried Dynamics Land Systems Divisions 3 USANC 0 General Dynamics Land Systems 0 Canded Dynamics Land Systems 0		General Dynamics Land Systems	•				• •			. :	•	- · - •	:
Colorest Systems Division Hughest Company (2) Hughest Inc. Hughest Company (2) Hughest Inc. Hughest Company (2) Hughest Inc. Hughest Inc. Hughest Company (2) Hughest Inc. Hughest Company Systems (2) Hughest Inc. Hughest Company Systems (2) Hughest Inc. Hughest Company Systems (2) Hughest Inc. Hughest Company Systems (2) Hughest Inc. Hughest Company Systems (2) Hughest Inc. Hughest Company Systems (2) Hughest Company Sy		GE ASO							·	•	•	- •- :	
Hunghes Allocation Company (2)	-	GE Defense Systems Division		- • -		:	·· • -		:	•	•	· · ·	:
Tacking Recording Tacking Recording Tacking Recording Tacking Recording Tacking Recording Tacking Recording Tacking Recording Tacking Recording Tacking Recording Tacking Recording Record		Highes Aircraft Company (2)		•	. !			· ·	:		 :	:	
IAC MIS RSC		Funicator Electronics inc.		- • : :	:		- • - -	:		•		÷	
IAC MIS RSC		Para Control of the C			•	:	•		! !		· 	•	: : :
MA NA NA NA NA NA NA NA					·-····································	- ; -	 .		:			• ē	;
SUB TOTAL NA NA But Helicopter Textron Inc General Dynamics Land Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems		TAC MIS RSC		- - - :	o:	-	7	:		٥.	• • •	-	•
SUB TOTAL NA NA Bull Helicopter Textron Inc General Dyniximiss Lond Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems Wilton Boilo Systems					:	-	: 	-	-	•	•	- -	:
NA But Helicopter Textron Inc General Dynamics Lond Systems Division USMC General Dynamics Lond Systems USMC General Dynamics Lond Systems 0 1 0 0 0 1		SUB TOTAL	13, 0, 2, 0			24	: :_168	22	127	0		0	J
NA But Melicopter Textron Inc General Dynamics Land Systems Division Ultion Data Systems Willors Butter Engineers. Inc USMC General Dynamics Land Systems 0 1 0 0 0 1					:				- :-			- •	
Meopter Textron Inc of Dynamics Land Systems Division Sold Systems Settler Engineers. Inc of Dynamics Land Systems	Ar Jutail, SA	₹ 2	3	.4	3.	~	4	: :	4	·-·		· 6	:
of Dynamics Land Systems Division Sala Systems Suffer Engineers. Inc. Divisornics Land Systems		Bell Helicopter Textron Inc				_	- •	:				• 🕂	:
s Butter Engineers. Inc. D I 0 0 0 I 0 0 0 O O O O O O O O O O O O		General Dynamics Land Systems Division				-	-	-;-	 -	-	- -	-•	
of Dynamics land Systems		Willbros Butter Engineers. Inc.					• 🕶	: ;		:	· - • ··	•	
at Dervomies Land Sestems	-		· -	0		-	: -•ō		- 6	- o		0	:
		General Dynamics Land Sistems					•					•	

					TABLE D.9			-					
				ALPHA PHASE.	ALPHA PHASE - CONTRACTORS AT FIXED LOCATIONS	AT FIXED LC	CATIONS				•	.	
— ————————————————————————————————————		NTRAC		-1				i !	· ·	•	:	• •	
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	2	Z -	MAINT SUF	FUNCTIONS PERFORMED T SUPPLY TRANS	TOTAL	PERMANENT MAINT SUPPLY	PERMANENT PERSONNEL 1 SUPPLY TRANS	FI TOTAL	MAINT S	TEMPORARY PERSONNEL T SUPPLY TRANS		TOTAL
···	SUB TOTAL	3, 2,	.0,	.			۵,	- <u></u>	1	· <u>-</u> ·	· ~·	.0.	
3		· ·,			: -	••	•	· ·				• •	: '
Orabien SA	Y.A	ه. ص.	с		~` ~`	2	2:	=	0.	νo.	Ö	ġ°	S
	Cheminicipal Systems, Inc.			1	•			- •	•			•	
	General Equipment, inc.						:	, i -	:		-		
	Gandral Bactric Agrospoce			· -•···	:			: •	: :	• •	:		
	GTE Government Systems Corporation (2)	• •		: . :	:		• • •	•			• ·	• • • •	
	Huneywell Maltony Avionics Division	. ;			:			· ·	:		• • • • •		
	Lord Vought Systems Inc.			-•	i :			:				•	
	Reprinced the Couperation Master Systems Remmedon Corporation Master Systems	•	•		:		•	- - •	-•-	_		•	
	Reckwell Tactical Systems Division		• - •			•		: 	; i .		: .	• •	
		· .		••	:		•	• - •	· ·				
	475th Quarter Muster Group	-· -·	o <u>`</u>	- :	- -	ਨ	~*	~! ~!	ē	ο.	oʻ.	0.	<u>6</u>
	Willthos Burler Engineers, Inc.		:	-	•		• • •	:	:		:	•	
					•		••		!		. ~	- -	_
	AMC SWA	. 2. . 0.	С.	۵,	. 2	3	. 2.	ō.	0	·o·	Ġ.	·o·	.
	Mock fruck Inc	· ·					•	- :		•	•	•••	
		•		•					:		:		
				• .	:			:	•			-	
	CECOM SIZA	.0.	.0.	0.			54	:-:	0.	.0.	` ɔ '	·0'	0
	ARING Research Corporation				:					· •			
	AYDIN Corporation Lower and Industries Incorporated				:			:			·	•	
	Ubrascope			: .			•		:	•		•	
	TOXO!			•			•						
	Mill 10HE Corporation						· · · · · · · · · · · · · · · · · · ·					· . •	_
	Nictorala Incorporated	:		-•	•		•	- - -		•	-	:	
	SERV. AIR Inc.		•			•		- •-	:		:	•	
	The EX Tower Corporation		-•		:		:		:	•	•		
				•	. · • ·		•	:			• • • •	• •	. :
	S de Se de S	:c	0	:		~	· •			.0	ە	Ċ	0
	Maniech field Engineering Corporation				. : 				; -	•	·-·	•	
	DEWOJ GNV	.62	.0	20	· n	-5	536	· • •	302	.0	.0	Ö	3
	Exect Aerosporce Service, Inc.			, . .	• •		: • • · :	· 	: ;	• •	. :		
	Boeing Holkrupters						- }		-				\rceil

			ALPHA PHASE - CONTRACTORS AT FIXED LOCATIONS	TABLE D-9 TRACTORS AT FIXED	LOCATIONS					
		CONTRACTORS		·-·•	:			•	• • •	: :
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	US US FIN FIN	I RUNCTIONS PERFORMED MAINT SUPPLY TRANS	PERFORMED TOTAL	MAJNT	PERMANENT PERSONNEL T SUPPLY TRANS	NEL S TOTAL	TEMPORARY	TEMPORARY PERSONNEL T SUPPLY TRANS	TOTAL
	COBKO Corporation		ł	_					:	
	Dyncorp				-• -	-	!	-•	•	
	General Instruments		•		1		· · ·	→		
	Honeywell		:	•••		: : : :	: ! !	•		!
	Howell	•				! • • • • • • • • • • • • • • • • • • •		• •	•	
	Hughes					: !	:		•	;
			· ·	-•-		-•	:	· ·		-,-
	Northeod	•		· ·	•	*··	:		• •	! ;
	Petoleum Holicopter Company		!	•- • • :	!		 	· i		
	Sanders Scientific Affords	<u>-</u>				:	·		•	:
-	Skorsky Alician Division				:	: : 			• • •	· :
	Skorsky Internativinal Products, Inc.			i - • ·					•	:
	Took Research	· ·	- •			- ! -	i-	•		:
	SUBTOTAL		0 42 11		38 38	11/	3 380	· 50.	0	-so
		•	•	: -	:		 -	• -	- • · · ·	-
Hafar A' Batin, SA	NA Reckwell Tacitical Systems Division	·o.	·_i-	·o;	i-' '	i o -	- -	0	0	د : ا
		•		:		 ••	:			
KK KK	: 2		0 10 2		-61	7	3	·•	.0	(40)
-	G'E Government Systems Corporation (3)		• -•	·· •	· -•			. ,		:
	Loguna Industries, incorporated M-Donosti, Dougles Halicanian Company	-:	!	· · · · · · · · · · · · · · · · · · ·		- • - :	:			:
	Raytheon Corporation Missile Systems		-	:	· -•			:		
	Reckwell international		:				-	•		:
	Strong international Products, inc				• = • : :	1	1			1
	Withros Butter Engineers, Inc.	:			:		:		• •	:
	CECOMForward	.0.	0	- G	:	io	0	o ·	· ·	6
	AUNC Research Corporation		-	→ i	:					;
	RAINBOW SRA #2 Maniech Fledd Engineering Curporation	0	0		3.	1-		· · ·	.0	0
	SUB TOTAL	. 0	12 3	2	17 23	-52	33	۰.	.0	60 .
		•		i ic		1- -		• •-	· · · · ·	
King For d Alie SA	NA					,	5			

			ALPHA PHASE - CONTRACTORS AT FIXED LOCATIONS	TABLE D.9 RACTORS AT FIXED L	OCATIONS						
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	CONTRACTORS US US FN FN	FUNCTIONS PERFORMED	PFORMED TOTAL	PERMANENT SUPPLY	PERMANENT PERSONNEL	ii rotai	TEMPC	TEMPORARY PERSONNEL	i .	į
	McDonnell Douglas Helicupter Consports				∔	J	: :	1 :	1	4	1
મિક્ષ દ્વારા અ લ્લા કર્	NA Al Masarah Utu Laguna Industriks, Incorporativd SERV-AR Inc Witbros Butter Engineers, Inc			5	<u> </u>		2			· · · · · · · · · · · · · · · · · · ·	4
Log bross Arstogna SA	NA Withous Butler Engineers, Inc.	0			· · · · · · · · · · · · · · · · · · ·	; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ;	. !				~
Ling there Brown, SA	NA Wifferos Buthar Engineers Inc.	0 0 1	: -	5	-\o_		0	· 		o	- 2
5	CCL, Inc. GE Government Systems Corporation GE Government Systems Corporation Hughes Almateff Cort. puny Ruytheon Corporation Missle Systems (2) Reckwell factions Systems Division Willbros Butter Engineers, Inc.					· · · · · · · · · · · · · · · · · · ·	-6		•		2
restardi.	NA GE Government Systems Corporation Uggung Industries Incorporation Nock Trucks Inc Not Donnell Douglas Electronic Systems Cythosh Truck Corporation Willbros Butter Engineers Inc (2)	0		0 1 1 1 1 1 1 1 1			•	· · · · · · · · · · · · · · · · · · ·			4
TOTAL	יוסיאו	74 26 3 0	31	9 139	402	16	5 625	31	• e	4	4

14 15 15 15 15 15 15 15		-	ALPHA	ALPHA PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	GANIZATION	WAL LOCATIONS			•		
1.47 1.47			NTRACTORS							•	
Systems Con Cumpany (2) Systems (2) Systems (3) Systems (3) Systems (4) Systems (5) Systems (5) Systems (6) Systems (7) Systems (7) Systems (8) Systems (9) Syste	FIXED LOCATION	ORGANIZATIONAL LOCATION	સે ⊢ ⊊ •	FUNCTIONS PERFORME MAINT SUPPLY TRANS		PEPMANENT MAINT SUPPLY	PERSONNEL TRANS	TOTAL	TEMPO MAINT SU	RARY PERSONIN PPLY TRAMS	
Syldens Con Company (2) Syldens Syld		1st AU	0	2		91	0	1/1	э	0	0
State Company (2) State Strioms (3) State Strioms (4) State Strioms (5) State Strioms (5) State Strioms (7) State Strioms (7) State Strioms (8) State Strioms (9) State Strioms		Ganeral Dynamics Land Systems	:				. ــــــــ . ــــــــــــــــــــــــــ	:	• •		
Systems (2) Systems (2) Systems (3) Systems (3) Systems (4) Systems (5) Systems (5) Systems (6) Systems (7) Systems (9) System		General Lyndrings Services Company (2)				· · • ·	<u>.</u> _	•	٠		: :
Systems (7) South (7) South (8) South (8) South (9)	Paris de la constante de la co		•	•	: - -	·		•	•	•	
Supplient (2) Supplient (2) Supplient (3) Supplient (3) Supplient (4) Supplient (4) Supplient (5) Supplient (5) Supplient (6) Supplient (6) Supplient (7) Supplient (7) Supplient (7) Supplient (7) Supplient (8) Supplient (8) Supplient (9) Su				•		•			•		:
Supplies (a) (b) (c) (c) (c) (c) (c) (c) (c) (c) (c) (c		IstiCAV	٠ -	5				8	.م.	0	
Systems (2) See Company (2) See Company (3) Systems Answes Systems (3) Systems Conformation C		Ahmad N Abinail & Sons				-·•	-•	-	•	•	•
Sup A. Systems (7) **Systems (7) **Corporation ** **Corporation		- MC Corpor alton		-•		- •	:			•	:
Systems (2) See Company (3) The Inc. Systems (3) Syst		CE Defence Systems Defence	•		:	•	· • ·				
Cest Compony (2) Whate Systems (3) Salams Cest Compony The Inc. Cest Compony The Inc. Cest Compony Cest Co		Ganaca Dynamics Land Systems (2)				•	:		<u>:</u>	•	:
s Corporation The state of the		Ganeria Dynamics Services Company (2)							• •		:
The Inc. 1	-	G1E Government Systems Corporation	•		-	•	• — :	•	<u>.</u> .	• •	: ;
Maske Systems (3) 3 0 0 0 0 3 1 0 0 0 0 0 0 0 0 0 0 0 0 0	-	Highes Aicraft Company	:			•	• •		•		
Systems Sys		Lockheed Support Systems, Inc.				• •	!				
Ces Company Ces Ces Ces Ces Ces Ces Ces Ces Ces Ces		M110PE Corporation					•	:		:	-•
Systems Care Company Cast Company Cast Company Cast Company Cast Company Cast Company Cast Company Cast Cast Cast Cast Cast Cast Cast Cast		Pentestar Electronics, Inc.	•		•	•	-+ 			•	
1 Systems 1 Systems		. Textron Lycoming		i .			· -		- •	•	•
Systems Cers Company Cers Com			•		•		:	:		•	
Cess Compactive Cess Compactive Compactive Cess Compactive Compactive Cess Compactive Cess Compactive Ces Compa		lst 10	3 0 0 0		4	· •6	·ō	•	:o	· • •	0
Company Misule Systems (3) 3 0 0 0 3 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0		Ganeral Dynamics Land Systems				· ·	; ; !				
Answer Systems (3) 3		General Dyrikimkis Services Company		-•			·-•	•		•	:
Arishe Systems (3) 3		Textron Lycoming			•	• • • • • • • • • • • • • • • • • • •	- - -	:		•	•
Attsule Systems (3) After Syste						-•-	i		•	:	:
Africate Systems (3) Africate Systems (3) Control of the control		11th ADA BDE	3.00			4	†o†		[O	•	· ·
alton Con Company Con Company Con Company Con Con Con Con Con Con Con Con Con Con		Raytheon Corporation Missile Systems (3)							:	- <u>:</u>	
alton Con Company Con Con Company Con Company Con Con Company Con Con Con Company Con Con Con Con Con Con Con Con Con Con	-				:		- •- - -	:		•	į
		OCCUPATION OF THE PROPERTY OF	:-				ے ۔ ۔ ۔ ۔ ۔		- · <u>-</u>	: :	- 10
alton (ca) Company (ca) Company (ca) (ca) (ca) (ca) (ca) (ca) (ca) (ca)		Roll Hollowice Textronito	·	· ·	_	•	s*) [*] ·	; ; ;• –
alton co-Company Co-Company				:			·			•	
alton c.e. Company C.e. Comp			•		• • •	- - -	• - •		•= ··	•	•
		101st AAD		-	4	. 5	0	т	. 2		0 .
		AftiNC Research Corporation				: !	- *			•	!
		BAR Helicopter Textron Inc	:		- •					•	:
		STATE OF THE SAME CONTRACTOR	•	:			-		•		
				• - •			:	:	. :	: •- •	. !
Polomoc Research, Inc.		124th Mi BN	0.	•	- ·	- -		S	oʻ	oʻ.	!
		Potomac Research, Inc.			:		•	:	- -	- -	:

FIXED LOCATION ORGANIZATIONAL LOCATION P 147.41 FA HDF AltinC Research Corporation Automated Research Systems Best Helicopter Textron Inc. Cit Defense Systems Division Geaned Dynamics Gord Systems Geaned Dynamics Services Company (2) Hughes Arcraft Company Textron Lycoming 24h ID Altin D Altin Casearch Corporation Best Helicopter Textron Inc. GE ASD Geaned Dynamics Lond Systems Casearch Dynamics Corporation Best Helicopter Textron Inc. GE ASD			ALTIA FIRMS - CONTRACTORS AT ORGANICAL LOCATIONS	333555	LORD		_				
DE PREMIER Corportion Idea Research Systems copier Textron Inc. Inse Systems Division Dynamics Gone Systems Upwarmics Services Company (2) Aircraft Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Services Company Loynamics Corporation Copper Research Corporation Inc.	CONTRACTORS US US FN FN P T P T	MAIN	FUNCTIONS PERFORMED T SUPPLY TRANS TOTAL	WAIR	PMANENT PE	RSONNEL TRANS TOTAL		TEMPO MAINT SU	TEMPORARY PERSONNEL T SUPPLY TRANS	PSONNEL TRANS	IOTAL
2nd ACIR Automated Research Systems Beat Helicoption Taxton Inc. Cit Defense Systems Division General Dynamics Grad Systems General Dynamics Services Company (2) Hughes Arcraft Company Textron Lycoming 2nd AD Ceneral Dynamics Services Company G'E Government Systems Corporation Ball Helicopter Textron Inc. GE ASD General Dynamics Corporation Ball Helicopter Textron Inc. GE ASD		2	···o· :	 			0			.0	
Sandard Dynamics Tomb yelens Gameral Dynamics Sowices Company (2) Hughes Arcraft Company G'E Government Systems Corporation Bull Helicopter Textron Inc. Government Dynamics Somicus Cacarol ID	4	0	· · · · · · · · · · · · · · · · · · ·	•		0	ō	v	· · · · · · · · · · · · · · · · · · ·	.0. , ,	~~
2nd AD Ganierol Dynamics Servicus Company G'E Government Systems Corporation 24th ID AltiNC Research Corporation Ball Helicopter Textron Inc. GE ASD								· · ·	• • • • • • • • • • • • • • • • • • •	·• · · · · · · ·	:
24th ID ARINC Research Corporation Ball Helicopter Textron Inc. GE ASD	2	2	· · · · · · · · · · · · · · · · · · ·		······································	· · · · · · ·	•	o'			3
(2) smothers from Systems (2)	7 4 0	01		13 21		· · · · · · · · · · · · · · · · · · ·	8	·ω, ·· ·		.o,	ਜ਼ ਰ ੇ ਹੈ। ਹਵਾਲੇ
General Dynamics Services Company (3) FMC Contraction Pantastor Electronics, Inc Textion Lycoming			· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		· · · · · · · ·			
212m FA BDE Lord Vought Systems Inc. (2)	0, 2,	2 - 0	·o· :	~			-8	. 4	· o' -· ·	***	
3rd ACR Bail Helicopter Textron Inc FMC Corporation GF Asy		6.	io	<u>-</u>	:	₀ , -	.21	ंब	.0		4
General Dynamics Land Systems (2) Ceneral Dynamics Services Company (2) Pentastor Electronics, Inc. Institon Lyccatiling				· · · · · · · · · · · · · · · · · · ·		**************************************			•	· · ; - · · ·	

		-	PHA PHASE - CC	TABLE D. 10 ALPHA PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	-10 ORGANIZADO	WAL LOCATION						
		TRACTORS US FN	r.	FUNCTIONS PERFORMED		PERMAN	PERMANENT PERSONNEL		TEMPOR	TEMPORARY PERSONNEL	SWEI	
FIXED LOCATION	ORGANIZATIONAL LOCATION	۵	MAIN	SUPPLY TRANS	S TOTAL	MAINT SUP	SUPPLY TRANS	TOTAL	MAINT SUP	SUPPLY TRANS	. 1	TOTAL
	ard AD	.6. .0.	4.	:	.0	<u>.</u>	.0.	:	.c.	-6-		:5
	Gemeral Dynamics Services Company (2) (3.1) Government Systems Corporation	:	- •	:		• -	•	:	•	-	- • •	:
	Seatron Lycoming			: :	:			- ·			: •- •	:
		:				- 1					:	:
\$ 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	35/F Sg 9Dt	· o ·	·_·	; ;o`	· o	.w.	· o	.es.	'c'	.	·o	0
C TRANSPIR	COOREGINATION STRAIG COOREGING		: :	:					•	• •	-	
		· · · · · · · · · · · · · · · · · · ·	3.	:_	0	·		च			ŏ	
	AUNC Reserted Corporation		•	. :			: !!				<u></u>	
	Bett Helicoptier Textron Inc. General Dynamics Services Company			: .								. :
		•				-•	:		:	•		;
_	IF 8 43/32 ADCOM	'o'		.0	~o*		'o'	~	.o.	.0.	·ō:	0
	ROYBITION CORPORATION MISSING Systems	: :			:		:		•		••	.
	III Corps Flements	.0.	5	.0	-o·	<u>e</u> .	· c	М	•0	'o'	· 6	
	G.E. Government Systems Corporation				:	- • -•	•				-• ·•	• .
	V⊪ C orps	· · · · ·	5.	:o	~ °	;-	· o	-		٠٠.		=
	Aking Research Corporation CCL inc		•-	:		:	•	:		• •	•	:
			•-•- : : -						•		• •	:
	Butten	101	-	:·	-2	. <u>~</u> .		6	·o·		0	· :
	General Dynamics Services Company		• •			- ••	 - - -		•		- -	:
	Ecopystion	.0	-	· o	•	· 'ō	.0	0	: · - ·		ō'	-;
	AliNC Research Corporation		. ;			i	-4					
				•		· ,	- · · ·			, ;	- '(
	Ohite Dyncorb	o. 4.	4.		ō,	o .	o.	0.	5, _	э [.] .	b: 1	2
	Lord Vought Systems Inc		· · ·						· · ·	•		•
	Mr.Donnell Dougks Helicopter Company	· :		: !		:			: •		:	:
						_						٦

		-		1ABLE D-10	4001144064	TO DE	:	:		:	· - • -
		ALM	ALMA PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	IONS AT ORGANI		2		-			
		THE COUNTY		:	Ţ.		: .		•		
		5 2	FUNCTIONS	FUNCTIONS PERFORMED	:	PERMANENT PERSONNE		 :	TEMPOR	Ž,	
FIXED LOCATION	ORGANIZATIONAL LOCATION	. 4	MAINT SUPPLY	TRANS TO	TOTAL MAIRT	SUPPLY	TRANS 10TAL	M M	AINT SUPPLY	LY TRANS	TOTAL
			: '		!	-		: <	: =		:
	USIARC	0 6 7	,	o. :	o!		; - - !	5 <u>-</u>	· ›:		
	General Dynamics Land Systems	: :	:	-1-	:	!	-: ;	1			:
	General Dynamics Salvices Company	•		· -	•		-1-	-		•	•
	GTE Government Systems		:	·	:	:	:	<u>.</u>			• -
	Litton Cata Systems (3)	•	:	:				: -	•		
	[extron Lycoming]		· · · · · · · · · · · · · · · · · · ·	!	:	1	-	-			•
-			:		:	:	:	-	•	•	
			· 88:	: 	106	12	25	219	.38	2	.35
JAIO!	MOIN										

			ALPHA PHASĒ -	I ABLE D-11 DACS AT FIXED LOCATIONS	CATIONS							
		CONTRACTORS US US FN FN	FUNCTIONS PERCORM.O	SEPTORM D	Wd3d	PEPMANENT PERSONNE	Jannos		TEMPOR	Beecsele verdodwit	· · · · · · · · · · · · · · · · · · ·	
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION		MAINT SUPPLY	TRANS TOTAL	MAIN	SUPPLY	. i	TOIAL	MAINT SUP	SUPPLY TRANS	S TOTAL	₹
Man Chath, UAI	(AMP.Brss)			نجا	2	Į.,.	ł≂⊷	=.	100	١_٠	ام	٥.
Act Domingin, SA	vms : sw		-			<u>.</u> 8		230		0		
	MI SA	· · ·		: : '5'	8	8		35	0		6	. 0
	SUB (OTAL		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	15	4 220	9		8	· •	0.		6
Al Jutx sil SA	Y.V.	• • •		: : : : : : : : : :			·					2
Ohothore, SA	AMC SWA			· · · · ·		+-	o·		· · - · · o ·			· · · · ·
	IAMP FORWARD		- <u> </u>	ō.	2	<u>.5</u>	-→ō·	- 92	•o•	: :o:	o.	5
	NIO: SUB	: :	. 2		2	4.		æ	.0,	· o · -		0;
tog txisa Apho		· · ·	; ; ; ;	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	+ -2-		- 4	· · · · · ·			
leap tarso Busteymo	¥Z.		• • • • • • • • • • • • • • • • • • • •	o	2	7		4	6.	: ·o·	-	- 6
і ед Ектен Велес	¥2.			0		~	·- · · · · · · · · · · · · · · · · · ·	. 4	0.	· ·o-		
क्षान्त्र (अन्द्रक			· · · · · · · · · · · · · · · · · · ·	0	2			4		· .o.		- 6
наукжа);	¥2.		- · · · · ·	•		•		0.	·'o'	غړ، ه	o `	 -
JOJA.	TOTAL	0 0 0 0	15	.0	27 264	187	0	- 134	01		,	8

							TABLE D-12	-13	:		·-:	•	•	٠	٠	•	:
		.	•		ALPHA P	ALPHA PHASE - DACS /	CS AT ORGANI	ANIZATION	AL LOCATIONS	ONS	-		}				
					_					- 4		_:	:	•		:	_
		CONTR	RACTO	Æ	:	•	:		·		. 4	- :	_ -		•		
-	•	3	3	Z.	:	FUNCTION	TUNCTIONS PERFORMED	WED		PERMANEN	II PERSO	NNEL	-	¥.	PORARY	EMPORARY PERSONNEL	. س
FIXED LOCATION	ORGANIZATIONAL LOCATION	· •		-	MAIN		Y TRANS	S TOTAL	MAIN	II SUPPLY	:	TRANS TO	TOTAL	MAINT	SUPPLY	TRANS	TOTAL
	24th ID				-	2	0	: ن	2	•	: : :	G,	€.	oʻ	o [;]	c ·	
			٠.					•		-•-	-	:	•	•			
			i		•	:_		c				· · c	_	···c			
	COUNTRY	:	•	•	:	<u>-</u> •	-	<u>.</u> :	<u>.</u>	,	;	·.	, 	· :	•		:
			•		·-	•	:	•		: -•	•	•		•			
10. (3)	: ICIA	· o			:		.0	ن.	-6	· ·	٥	.0	01	0		.0	
Z		,		,													

						TABLEDIA					-		-		
	-		. <	LPHA PHU	ISE - CONTRA	ALPHA PHASE - CONTRACTORS AT CORPS REAR/THEATER AIREA	CORPS REAL	R/THEATER A	IREA				-		
		CONTRAC	1085	-			.:_	:					:	.	
		S	Z		FUNCTION	FUNCTIONS PERFORMED	۵	: E	PERMANENT PERSONNEL	PERSONNEL		E	TEMPORARY PERSONNEL	ERSONNEL	:
FIXED LOCATION	ORGANIZATIONAL LOCATION	•		MAJNT	NT SUPPLY	Y TRANS	TOTAL	MAINT	MAINT SUPPLY	TRANS	TOTAL	MAJNT	SUPPLY	TRANS	TOTAL
	AN	0	91	0	Э	0	5. 16	0.	0	2420	2420	Ó	0	o'	0
	Abdullah A.M. Al Khodari Fst			<u>:</u>			•	-					•	• •	:
	Adil Al Missing		•	_	· : • ·					:			: :	: :	
- —	All Salesh Akarnu Est		•				•	! -		_			: :		
	Al Askor froding Est		•				• • •	! -					· · ·	•	
	Al Magam Confracting		• • •											•	
•	Al Shimrany Metral Industries				•			:		•			•		
	At Matrood Trading Est		•											•	
	American President lines				•								-		-
	Bondor International				•-··		•			!				•	
	Doubleth Transport Co					: :				· · ·	_		:	•	
	Funel Unos	•		· 					_		. :				
	Gulf Bridgo Est									•		-		•	
	Harroad (broblen Al zoto Co. LTD)											-		•	:
	Exchim At Quatani Est											:	. •		•
	i.ykos lines						•			· - • • •		:			_
	Sext and	:				• •	· -•				,	•		•	!
ICIA	IOIA:	· o	.∾	- -0		.0	۶.	- o	0	2420	2420		o	0	

							AT	IABUE D-14		-	-•	•	-	•	•	٠	
					-		ALMA TA	ALPHA PRASE - SUMMARY	MARY								
		Ö	≛	CTOPS			• - •	•		٠	•	•			•	•	
		3	ŝ	Z	æ	FUNC	FUNCTIONS PERFORMED	FORMED		E B.	PERMANENT PERSONNEL	EPSONNEL		TEXT	TEMPORARY PERSONNE	PSONNEL	-
LOCATION	CONTRACTORS/DACS	•	-	٠.	_	MAINTS	SUPPLY	TRANS	TOTAL	MAINT SUPPLY	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL
Cisted	CONTRACTORS	74	2	<u></u>	D	3	ë	_{>} . 	130	402	113	5.	929	ε	•	4	4
1980 ANIZABONAL	CONTRACTORS	3.	Ξ	·-·	0	3	'R	·_·	10%	182	2	%	210	3 5	~	ο.	3
	SUB-FOTAL	<u>.</u> 8		.△.	- 13	38		.00.	244	6/4	<u>8</u>	8		. (8)	.00.	4.	8
			٠	٠					_	- •			:			•	
G XI	DACS	·o`	.0.	. G.	-6	. 35.		. O.	2	35	187	-6	45	· 61	·	·°,	8
CHANTAHONAC	DACS		ິດ.	ο,	0		0.	ο.	<u>e</u>	ō,	0	öʻ-	<u>o</u>	٥.	0	ο.	
	SUB TOTAL	o.	٠٥.	٠٥.		. 20 €	2	· o ·	R	274	169	0	94	2	·· <u>-</u> ·	∵	8
			• -	٠	-	.• .				-	- -	:		•	•	•	
COURT SEARY	CONTRACTORS	·o'	Э,	-∞	0	[o	·ō	· <u>o</u> ·	2	<u>.</u> 0,	.0.	2420	2420	.o.	·o.	.o.	J
THE ATER ARMY AIR A			•-	•		• •					-			•		• =	
 Rotal	TOIAL	~	-7/5	8	-0	. 50	ક	26	200	948	317	2460	3725	.90	٠٥	. 4	21.
}																	į

			TABLE D-15 MANO PHASE - CONTRACTORS AT EXTED LOCATIONS	OCATIONS			- •	:	
						_	 		
		CONTRACTORS US US FN FN	FUNCTIONS PERFORMED	PERMANENT PERSONNE			TEMPORARY PERSONNEL	PERSONNEL	
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	d	MAINT SUPPLY TRANS TOTAL	MAINT SUPPLY	: 1	TOTAL MAINT	INT SUPPLY	TRANS	TOTAL
Athi Drith, UAF	TAMF BOSH	0 0 0 8	8 2 0 10	. 72	0	8	0	oʻ	5
	CO3RO Corporation			•	:	:	•	:	
	Hor eywell Military Avionics Division	:		:			•		
	Johnson Controls World Services, Inc.	:		:	.	:	:		
	Martin Marietta Corporation			-•		-			:
	McDonnell Douglas Finctionic Systems				:	-		•••	-
	McConnell Douglas Hallcophy Cumpany				+	•		÷	:
	Rockwell International Corporation			•				-:	
	Shorts Brothers	.:			-		:		:
- 0		-:-			:	- 52	ō	~o	0
Ad Chimagin, SA	NA Consent Denomine Sentrae Common (2)	o'	2	:	:	· } :	, ;•-	•	-
	Control of the contro	.1.				:	: •	:	
			•	- - ·	: 			•	:
	ASGIMA	0	0	· 50	· o	~	0	ō*	0
	Textron Lycoming			:	:	-		- -	
		-;			<u>.</u>	:		•	
		- 10	: 4	: 4		·	!	•	:
	White the state of	> ·	2	3*-	:	<u>.</u>			
	Automated Resourch Systems	· ·		•	:	:	:	· :	:
	Copyage Describer Copyage			· -		<u>. </u>		·	:
	CE-ASD			: -	:				!!!
	GE Defense Systems Division								
	Hughes Alicraff Company (2)						:	_ - -	:
	Pentastar Electronics, Inc.				:	-	:	-	i
	Textor Lycoming			-		į	: .•.	:	
	•		!!		-	:	:	:	:
	IACAIIS RSC	0 0	0	5	0	~	.0.	0	0
	. CC: 130:			_		•	i :	•	
			12 2			9		•	-0
	SUB-LOIAL			. <u>.</u> !	:	<u>-</u>	, . ,• -	· -	
		•	4		:	.	:	•	:
Al Julyani SA		2 1 0 0	2,5	2	o	\ ~	- -	-	~
	Ganacal Dynomics Land Systems Division			• -					:
	Litton Data Systems	:						-• :	:
	Willords Buller Engineers, Inc.					•	:	-4 -	:
		•	•			-			:
% uca. # 200	. 2	5 2 0 0	7 2 0 9	12	0	121	•	·o	1
	Brown International Corporation				_;		•		
	Everett Equipment, Inc.								

		•			BRAYO PHASE - CONTRACTORS AT FIXED LOCATIONS		CATIONS		_					
		TEAC.												
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	સુવ સ ⊢ કુવ	<u> </u>	FUNCTIONS MAINT SUPPLY	PERFORMED TRANS	TOTAL	MAIN	PERMANENT PERSONNEL 1 SUPPLY TRANS	ERSONINEL TRANS	TOTAL	TEM	PORARY P	TEMPORARY PERSONNEL T SUPPLY TRANS	TOTAL
	General Flecthic Aerospace GTE Government Systems Corporation (2)											:		
	Raytheon Corporation Missile Systems		:			•		→		-				.i.,
	Rockwell Tactical Systems Division		· ·	:				• • •		:				
	475th Quarter Musster Group	0 0 -	- 6	: :_			. ~	4	ં ન્	- 3	.0	.0	:	
	Wittoros Butter Engineers, Inc.	· ·	,						;• · :		•			•- •
		:	<u>.</u>	•			:	:	:	į	į			
	AMC SWA	2 0 0	- 6	:~	2.	\$		်ဝ	• ō	7	·0	.0		
	Mock Tack Inc				i			!	· · · · · · · · · · · · · · · · · · ·			:		
	Oshkash Irusik Corporation								:					
			.	:			,	:	!		•	:		
	CECOM SPA	.0.	-6 -	: : <u>=</u> :	.0.	2	. 25.	:-·	·o*	2	· o	· o ·	0	: .
	ARING Research Corporation				•	•	:	•	—∔	 ; }	٠	•		
	AVDIN Corporation	:			•		:	•	:	- Ç	•			
	C. In C. In Marin Englanders Corporations				:		•	:			•	•		
	LABOREDO PROBINES PROPORTINAS		· ·		•	÷	•	:	••			•		
	10.0	•	-	•				•	:		•	•		
	Mit TUPE Corporation	•		:		-		:	· ·	-	•	•		:
	Motorola incorporated		-	. :		:		:	į					
	SERV AIR Inc	•	:	:						:	٠	•		
	Telectyne Continental Motors	. :			•	_		. 4.	**		•	•		
		•	:	: :	•		:-	- ·	;		:		:	
			-					: :	÷			• • •		
	Rambow SIA #1	ο ·	0	_	0	~	2		0	₹	oʻ	0	0	
	Manfech Field Englineering Corporation		-	:				:	+-		. :			
	TAMP Forward	0 .0	; ;	: <u>o</u>	.0 : :	8	28	28	ö	88	·o	0	۰.	
	Accompatition Mediterrandon Corporation		- 				• -	- -	• :	•				
	Beech Aerospace Service, Inc.					:	•	:				•		
	Boeing Helicopters COBIO Companies				: i		:	!	:			-,		
		:	· :	•		-	-	ī :	!	:	•	•		
	General Electric Company		-					:	-	:	• -	•		
	General Instruments							• • • • • • • • •	•	:	• •			
	Honeywell			:		:	-•			:	٠			:
	Howolf		<u>.</u>	:	; ;				. .	:		_•		
	ייין איניין				:				į		•			
			<u>.</u>	!			•	•				•		

				TABLE D-15 BRAVO PHASE - CONTRACTORS AT FIXED LOCATIONS	TABLE D-15 ONTRACTORS A	I HXED IC	CATIONS				;	1	
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	CONTRACT US US	FN FN	FUNCTIONS MAINT SUPPLY	FUNCTIONS PERFORMED SUPPLY TRANS	TOTAL	PERI	PERMANENT PERSONNE		TOTAL MAINT	TEMPORARY PERSONNE NT SUPPLY TRANS	PERSONNEL TRANS	TOTAL
	Northrop Petroleum Helicopter Company Sanders Scientific Attantic Skorsky Atcraft Division Skorsky International Products Inc. Task Research						· · · · · · · ·						
Hofic Al Bultin, S.A.	SUB-TOTAL NA Seal Helecopter feation inc.		0 0	4		₹ ~.	8	8 0	m C	8	•		4 0
KKIMC, SA	NA Brown International Corporation General Dynamics Services Company GTE Government Systems Corporation (2) Honerwell Military Avionics Division	7. 7.	0	7	8	8	\$	2.		8		0	=
	Loguna industries, incorporated Lockheed Support Systems, inc. McDonnel Douglas Helicopier, Company Raytheon Corporation Missile Systems (?) Rockwell International Corporation SERV Alt Inc. Sucossy International Products, inc. Williams Butter Engineers, inc.												
	CECOM Forward ARINC Research Corporation RAINBOW SRA #2				0 0	 ~	- 0	0 1 1-	0 0				0 0
	Manifech field Engmeering Corporation substolial.		0			2	9	52	- -	78	<u>.</u>		= =
King Fahu AFB. SA	NA McDonnell Douglas Helicopter Company McDonnell Douglas Electronic Systems	0 5	0	· · · · · · · · · · · · · · · · · · ·	0		0:		o	0 :		0	2
log torso Alpha, SA	ž	0.	-	٠.	→ ₀	,	12	0	→ _ō	12	2	0	•

				_					
3	ACT ACC DENTE LABOR ASSESSMENT OF CHILD	CONTRACTORS US US FN FN	FUNCTIONS PERFORMED		PERMANENT PERSONNEL		TEMPORARY PERSONNEL	PERSONNEL	
	Al Massian (1d		SALES OF THE SALES	┿		2	1 .	200	2
	SERV AIR Inc								
	McDonnell Dougks Electronic Systems			-	:			•	
	Millbros Buffer Engineers. Inc.								
			·				•	•	
Coultase Bastogne, SA	47	0 0 1	·_·	~	.0	0	:_:		_
	Williams Butter Engineers, inc						•		
		• • •							
AN ONE BEARING	Mer Avenue Develop Feditions Systems	o.	o'.	₹	o · -	0	m'	٥,	ग .
	McDonnell Douglas Helicupier Company Mile are Burter Economics					:			
	WIECOS GOINGE STRUMBERS III.C.				:	•			
Tog tose Charles SA	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	0.00.0	4 3 0.		2 0				
	Montech Held Engineering Corporation					:			
	McDonnell Douglas Hallcupter Company			_,	· · · · · · · · · · · · · · · · · · ·			· ·	
	Wilbros Butier Engineers, Inc					:	• •		
test tures forto, SA	, 4 2 .	0 2 0	2. 1. 0.	ني	.0	• • • • • • • • • • • • • • • • • • •	.~.	.0.	n
	Coguna Industries Incorporated Williams Butter Evaluates two				• • • •				
				•	• • •	:	· ·		
Paratti SA	.3	8.3.0.0	. 1	- 6	. 6	- 6	.~.		е.
	Brown International Corporation		. :		•		:	-	
	Chelling Cheinnatt Electrones Corporation		• •		: :				
	Hughes Alcraft Company				•				
	McDonnell bougks Helicopail Company Raytheon Corporation Missle Systems (2)	•			† ;	:	• •	•	-
	Whitpros Buther Englishers Inc.		:	:				•	
	Reinbow SRA #3 Mention Consenses	0.00	0 1	~	-	· · · · · · · · · · · · · · · · · · ·	.0.	· o ·	
						:		•	
	SUB-TOTAL	9 3.0		Ξ	2	. 13	·~·		С
				-	•		-		

						2	ABLE D-15									
		; ,		•	RAVO PHA	SE - CONTI	BRAVO PHASE - CONTRACTORS AT FIXED LOCATIONS	I FOCED LC	CATIONS							
		-						l								
	i		CTORS	-		•	: •									
		2	æ	Œ	ā	FUNCTIONS PERFORMED	BRORMED	-		PERMANENT PERSONNEL	ERSONNEL			TEMPORARY PERSONNEL	ERSONNEL	
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION			- -	MAINT	SUPPLY	SUPPLY TRANS TOTAL MAINT SUPPLY TRANS TOTAL	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TEAMS TOTAL	TOTAL
Iheoter	AN AN	0	3 0	0		0	0 0 0	3	Ō	ō	0 0	0	8	ō	0	
	GTE Government Systems Corporation	!	: •-•			— 		_					:			
	Mock Irucks, Inc.			_				_					_			
	Oshkosh Truck Corporation		_	_		-		-	-							
		-	! : •		:		· -	 								
	•) - ·	: 	<u> </u>	• - •	i i				!					-	
TOIA		2	۔۔	0	<u>.</u> ≘	3	37	ন্ত	\$	8	155 604 148 15 767	767		44 6 2	~	22

			. 3	RAVO P	BRAVO PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	ACTORS A	IT ORSAN	ZATION	AL LOCA					•		
		CON ST	CONTRACTORS		FUNCTIO	FUNCTIONS PERFORMED	- Q	:		MAANENT	ISPANOSASA INSNAMASA			SHOOD AND ADVANCED TO SHOOT THE	JAMACSO	
FIXED LOCATION	ORGANIZATIONAL LOCATION	٠ •	_ d	-	MAINT SUPPLY	LY TRANS			MAINT	SUPPLY	IRANS	TOTAL	MAINT SUPPLY	SUPPLY	TEANS	TOTAL
	1st AG	9	o,	0	9	~	c.	0	Ξ,	-	0		o.	o.	0	0
-	General Dynamics Land Systems	•		_	- · •		•		- •				•	- •		
	General Dynamics Services Company (2)	•		-	-•	··•		-				:	•	•	-•	
	Burnou I yeoming	•		_	•		-•-	· ·	:		:		. •			
	•	•		_	i •	-•		+	•-	•			-•-		-	:
	79 787	٠,				:	-		9	:	*	98	٠.	· c		
	Abresd N. Altaral & Sons	·-		-	· ·	·-	•	2	\$:	3; :	:	·	o.	۰,	
	Seal Helicocher Textron (no.			-	•	•	•						•	•		
	FMC Corporation	:	•	_	•	· -•			-	į			•	•		:
	Covered Decomber Local Sections	:	•				•			:		:	•	•		
	General Dynamics Saylos Company		•	•	:		:	-					•	•	:	
	Cf. ASD		• -	·-	:	:	•-				!		•	•	•	
	Cif Defends Systems (Notice)	-		_			-•		. •	:			:	•	:	
	CIE Common Statems Constitution	•	•	<u> </u>		.;		-	-• -	:			•	•	•	
	The state of the s					4.	. <u>.</u>	<u></u>	:		•		•	••		
Halfer Albanta O SA	Location Compare to	-			:	•				:			•	•	•	
	Methodoli Describe Dontone	-••	•	•		•-		_	!	•	:-		•	-	•	
	MAIL TODE CONSCRIPTION		:	_		<u>.</u>			_		:		•	•		
	Textico Lycomical		:		:	- ;	•		:	;	:		•	•	:	
•				-		•				!	:		•	•	:	
	•		•	:	• •		٠.	=	:	:	:			•	-	
	Ō tsī		ص. ن	0	! •	~	.0	- 60	40	:	0		: - 2	.0	.0	
	George Denomics Land Systems	,: 	·.	·-	,	•	•	, -	•••			5		· .		-
	Canadi Dynamky Sewices Concerns		:	-	•	Ļ.			•	:	:				•	
	GE ASD		•	:	:		•		• •		:	-	•	•••		
	GE Defense Systems Division		•	:	•	•	•	-			:	:	•	•	:	
	Hughes Alicraft Company	: 		· 	•	<u>.</u>	: :	-	:	:	· -	:	• .	•		
	lextron Lycoming	• •	• •	_		•	• ;	-					• •	• •	• - •	
				_		•	. :	-	. !			. :	•	•	:	
·			1,	•	<u> </u>		· · · i			•	j	:	:		•	
	I THE ADA BDE	ص. س	0.	<u>5</u> :	ю °	٥.	, 0	m	7	• :	0	₹	o - :	ō	0.	
	Raytheon Corporation Missile Systems (3)	:	•	-	:		•	-	!	i		:			•	
			•	-	:			:	:	!	-		•	-•-	:	
	JOH WAN BOF	•	· c	-	<u>-</u> -	•	·c	-	:	.0	ੋਂ :	C	-	•0	•0	
	McDonnell Dougles Flectronic Systems	;- :	•	: 		; ,• ·	; • -	_	-	; :	<u> </u>	:	:			
				<u>. </u>			<u>-</u> _		:				•	:	•	:
	•		•			•					*- ··		• -•	• •	-	
	IOIst AAD	.0.	3.0	0	ල	· o ·	0	<u></u>	ō	0	ōʻ	0	່.ພຸ	· o :	oʻ	
	ARING Research Corporation				i			-						-	•	
	Best Hettcopter Textron Inc	- ·	-		1	-•	: - -	:		!			•		:	
	McDonnell Douglas Electronic Systems		• •		•	-:		-			•		:	- •	•	٠
				-	-				_		• • •				-	

				TABLE D-16						
		BRAV	O PHASE - CONTRA	BRAVO PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	ONAL LOCATION	2				
		TRACTORS			18	BCDA1A MENT DCDC DANKE				+ 4=
FIXED LOCATION	ORGANIZATIONAL LOCATION	E - 3 - 3 -	MAINT SUPPLY	Y TRANS TOTAL	MAINT SUF	SUPPLY TRANS	TOTAL	MAINT SUPPLY	TRANS	TOTAL
	147d FA BDE ARINC Research Corportion	0	· :	0	-:0'-'	0	0			
	And ACR Beal Helicopter Teatron Inc General Dynamics Land Systems General Dynamics Sankres Company (2) GE Defense Systems Division Hughes Allicraft Company Teatron Lycoming	33:		5		Ö.	0		0	4
	2nd AD General Dynamics Services Company GTE Government Systems Corporation			0		0	•	: 	o	0
: 	24th (D. ARINC Research Corporation Bell Helscopter Fathon Inc. Bell Helscopter Fathon Inc. Efectionic & Sooce Corp. General Dynomics stored Systems General Dynomics Services Company (3).	7 4 0 0		2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3			8		:	4
	GE_ASD FMC Corporation McDonnell Douglas Electronic Systems Textron Lycoming									
	yd ACR Automated Research Corporation Bell Helicopter Textron Inc. General Dynamics Land Systems General Dynamics Services Company (2)	99		0	0	0	<u>o</u>		0	
	GE ASD GE Defense Systems Division Hughes Alecraft Compony Textron Lycoming									
	Jrd AD General Dynamics Land Systems	2 0 0		2 0 ,	8.	10	21	0	0	0

	•	:		CV 40	TABLE D-16 BRAND PHASE - CONTRACTORS AT OR ANZARONAL LOCATIONS	TABLE D-16	C ANNO A	NAC.	A TACABLE	_ ; .	- <u> </u>	i-	:		- • •	
				\vdash							:	-			-	T .
		₹	و	E	FUNCTIONS	25 -		: ;	PERMANI	- w				Y PERSONI		
HIXED LOCATION	General Dynomks Services Company (2)		•	-	MAINT SUPPLY	PANS	TOTAL	MAIN	SUPPLY	LY TRANS	STOTAL	MAINT	SUPPLY	TRANS	TOTAL	اد
·	GIE Government Systems Corporation feation (ycoming		· · ·			!			• • •		: : :	•	·	i	: 	
		- : :					. :		! ! •-•	· -• 			: .	-··•	 	
Byouth SA	JSIN 3g 8DE GIE Government Systems Corporation		o		-: ·	j .		· ,	: : :	0	0	.	:	o' ~ '	۰	0
	HONG ARI)	· · ·			: 			· :	· · ·		c					: ~
	ARING Research Corporation Bell Helicopter Textron the		· ·	, 	· ···) 	, 	 -	: ;•-• ·	• •	· · · · · · · · · · · · · · · · · · ·		. :	 	·	•
	Ceneral Dynamics Services Company McDonnell Douglas Electronic Systems				• • •	: ; ·			. ·	· · · · · · · · · · · · · · · · · · ·					• ··· •	
			•			· .		:			:		·			
	If 8-43/32 ADCOM Rayethor Corporation Mistle Systems	:	:o	0		101 10				·o	0			··o·	· • ·	.0
	•	:	• •	 -		: : : :		: ·	· •- :	· ·	: • _ 		• = •			
	III Corps Elements GTE Government Systems Corporation	·_··	.0.	-6i -		:0			·	-0-		<u>_</u> e	: : : _o	· · _o · ·		-
		· · ·		+	•					: - -	: :					
	VII Corps ARINC Research Corporation	~	· · ·	ਨ :	m	o			~	o	0	~	:	o	۰	
	CCL In: FMC Corporation				- • •	: · :			· :	; 	· .					
	C STATES	• •:		- ; c	· ·_	· · · · · · · · · · · · · · · · · · ·		- ; 6	i .	: ":-	· •		· ;			
	General Dynamics Services Company		· ·			· · ·			: : : :	 	· ····	,	; .	· ·	:	
	Fayphan				· •=					· -o	· · · · · ·		. :_:		·	 -
·•	Alanc Resourch Corporation				· •		:		:		: ! - !					
	AHIO.		·	- 6	• • • • • • • • • • • • • • • • • • •	0	, . .	: :	<u>-</u> -:		₀ -			~.	۰.۰	
	Allson Gas Turbine Division - CMC Dangern	: ••			•			· 			- + -			 .	•	
	General Electric Agrospace	· .		+	• .	· ·		. I		! !	++			• • •	1.	
	GLE Covernment Systems Corporation Manifech Field Engineering Corporation												:			\neg

		- 	ļ		 		TABLE D-16	9						_	-	
		-	·	Ž	10 PHASE	CONTRAC	TORS AT O	ICANIZATI	BRAVO PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	ATIONS					† 	
				1		4								1	• —	
		00	TRACTO	\$		-		:								
		3	3	2	:	UNCTIONS	FUNCTIONS PERFORMED	٥	*	PERMANENT PERSONNE	FESONNEL		₩	TEMPORARY PERSONNE	ERSONNEL	
FIXED LOCATION	ORGANIZATIONAL LOCATION		2÷ ;►	 _	MAINT	SUPPLY	#ANS	TOTAL	MAIN	SUPPLY	TANS	TOTAL	MAIN	SUPPLY	TEANS	MOTAL
	McDonnel Douglas Electronic Systems (2) McDonnel Douglas Helicopter Company												· !			
		 	: . • - • :	; - ! -~•	, ;	; ' · ·							:		++	
	USINC	-	ന	ō	0	7	د د		٥	,	0	2	?	0	ô	e
-	General Dynamics Land Systems			-												
	General Dynamics Services Comapny	_													_	
	Kamam Sciences Corporation		•			•									1	
	Utton Data Systems (3)														1	
	Textron Lycoming		•				:		- !			_	:			1
		•		-•-		· ·	:	-	:	-			:	:		
1014	IO[A]	2	.0	+ <u>-</u>	- 0	8		=	<u> </u>	: :-	×	215	₹	•	-	

			TABLE D-17 BRAVO PHASE - DACS AT FIXED LOCATIONS	17 I RXED LOCA	nows		:				
		NIRACTORS		. ,							
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	ES US FN	FUNCTIONS PERFORMED MAINT SUPPLY TRANS	ED TOTAL	MAIN! R	PERMANENT PERSONNEL T SUPPLY TRANS	INEL IS TOTAL	IEMP MAIN! S	TEMPORARY PERSONNEL 1 SUPPLY TRANS		TOTAL
Atsu Ohats, UAL	IAMP BUSH			9.	•	ι.	0.	1	ای	15.	0
					;				•	:	
Ad Dammam, SA	AT.		1 1	0 2	· - .	· o	0	0	· o`	· o	
	VRC SWA		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		88	8	0.00	···o'	ə.	0	0
	METSA			0	8	8	os;	ئے:	.0.	····o*	-0
	SUB TOTAL		3.		36	580		'o'	'c:	.٥,	5
A lexxul SA	4			0	.0			2	0	0	2
					:		• •			• ·••	
Oriothian, SA	AMC:SWA		.0		0,	~~. ~	0	0	.0	' o'	
	IAMP Forward			0	9	: : <u>2</u>	32	·•·	.0.	.0.	Ö
	SUBICIAL				: 9	.	5,	.0,		.0,	
			1	-:	:		: :			: 10	
KKM4C, SA		•		0	8	=	0	0	0	o * '	5
AS the Commanded	4				~	N i	0		· ō·		Ö
out bose Bostogne, SA	NA NA				5	2	-0				0
LOG DATH BITNO, SA	N.A.			:			0,		· 'o'	• •	0
(og brise Civille, SA	₹.				: ~ ; 	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	°; °;	· · ō	·-··ō.	;	5
Log base Delta. SA	¥ Z	3 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -							••••••••••••••••••••••••••••••••••••••	' -:oʻ	0
LOG DOSKA EUTIO, SA	₹2.			· .	~	7	4	· · · · · · · · · · · · · · · · · · ·		·	- 6
Iheattar	NA		4 3	0 ,		0	0	0	-	- '0	

:	:		ī		· 	: -•-	BRAY	VO PHASE	TABLE D-17 BRAVO PHASE - DACS AT FIXED LOCATIONS	XED LOC	DIOCATIONS							
		:			STORY STORY	act of the state o		 	-		-		+					
:	i :	:	:	, E	}	2	:	BINCHONS BEBE	PINCTIONS BEDECOMAED	:	-	DCDAJANCA	DEBATANKAT BEDEVANKI	-	:	TELEGODA DV BEDECHARD	CARDODA DV BCDCCARGO	i
FIXED LOCATION	SUB-ORGANIZA	SUB-ORGANIZATIONAL/FIXED LOCATION			•	-	MAIN	SUPPLY	MAINT SUPPLY TRANS	TOTAL	KAN	T SUPE	MAINT SUPPLY TRANS T	TOTAL		MAJINT SUPPLY TRANS	TRANS	TOTAL
:			:			:	-							L	_			
IOIAL	OF			; •	io.		121			୍ର :	. 4	4711	33 4711 296 0 76	- 0		-] ⁸

				-	7	IABLE D-18		-:	-	: : : !			-	:	:::::::::::::::::::::::::::::::::::::::
				BRAYO PHASE - DACS AT OPGANIZATIONAL LOCATIONS	DACS AT	OPGANIZA	TIONAL LC	SCATIONS					-		
						 			ļ	1		•		-• ·	•
		CONTRACTORS		<u>-</u>	• - •		_					• •	:		
		¥	2	_	UNCTIONS PERFORMED	FORMED	-	2	MANENT P	PERMANENT PERSONNEL		72	EMPORARY PERSONNEL	EPSONNEL	:
406400	MONATON I AMONATINA	} -	•	MAIN	SUPPLY	TRANS TOTAL	-	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRAMS	TOTAL
PIXED LOCATION	ORGANICAL COCATION						1	0	٢	ē	٦		Ċ	Ē	_
	Y.	· •	•	o ⁻	o∵.	o: :	5 · !	 : :	5! !	5 !	5.	٥.	5		
			•	-	_		-	;	+	:		•	•		•
_						_				:		•	•	-•,	:
-		:-	0	: o		: -o	0	ō	0	0	0	0	ō	Ö	٥

							TABLE D-19							-	-	Γ
				RAVOI	PHASE.C	BRAVO PHASE - CONTRACTORS AT CORPS REAR/THEATER ARMY AREA	ARS AT COR	PPS REAR/TI	HEATER ARI	WY AREA	• : :		•		-	
		CON	TRACTORS	۵.		:			:			:	•	: : :	-	,
	•	3	. S	.	_	FUNCTIONS PERFORMED	PERFORME	م.	*	PERMANENT PERSONNEL	EPSONNEL		TEMPORARY F	ARY PERSONNE	1	
FIXED LOCATION	ORGANIZATIONAL LOCATION	: - <u>a</u>	<u>م</u>	-	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT SUPPLY	PLY TRANS	ATOT A	3
	NA	0	0	0		0	-	-	٥	Ō	2000	2000	Ö	ö	0	٥
	Abdultah A M Al Khodari Est				:	- • •	• -		:	•	• :	l	•	•		_
	Adit Al Misonal	• 		:	:	:	• -	:	:			 !	:	· •	•-	:
	All Scaloth Akamit Est	•	•	:		•			:		- - -	! !	•	!	<u></u>	:
	Al Askor Trading Est		+			•			•	:	· ·	-	:	.		:
	Al Mortam Confracting		•			• -		:		-		:	:	• -	! -	:
	Al Shmiony Metal Industries		•			- -	•	:	:			· · · · · · · · · · · · · · · · · · ·	•		•	-
	Al Matrood Tracting Est		<u>:</u> -		_	• -	•	• -		:	•-		•	• • •	•	
	At Thick Rulo Est		•	!	:	•	• -	• · ·			·-		•	•-	<u>.</u>	:
	American President Lines	•	•		:	: : • -	: •				1	:	•	:	•	-
	Bandar International	•	•	: -	:	· · · · · ·	•		:	:	:	-	•	: 	: -	:
	Dallah Iransport Co.	•				•		· .		:	• !		•	•	:	
	Forrell Lines	: : :			-	•	•								-	
	Guif Bridge Est		•-			!	!			:		:	•	· -		:
	Humoud lbrahim Al Nato Co 11D		•		_	•	4		· !		:::::::::::::::::::::::::::::::::::::::	i !				_
	Ibrahim Al-Quatani Est		•				•				!		•	•	: i •	:
	Lykes Lines	•	•									:	•	• • • •		:
	Section					: : 			:			: !	: : :	· -		
10101	10101	۰.	ح.	··· <	_	 					3000	2000			-	
T. Alvar		٠,	- 2	5	1	5	-	•	,	2	327	3	>	ò	5	2

							1	LABLE D-20									
		· {	.		.		BRAVO P	RAVO PHASE - SUMMARY	MARY		[
		CON	VIRACTORS	São							•	• •				•	
rocation	CONBACTOR	5.0	5 -	 ₹•	<u>z</u> -	FUNK	FUNCTIONS PERFORMED	PFORMED	¥.01	MAINT TER	PERMANENT PERSONNEL	PSONNEL	TOTAL	MAINT	TEMPORARY PERSONNE T SUPPLY TRANS	ERSCHWEL	TOTAL
Cjx:	CONIRACIONS	ج	32	-	15	b	3		35	1	<u>4</u>	15	161		9	2	52
- 12 JANUALEONAL	CONTRACTORS	.53	` 3 .	·-	0	8	0,	· _ ·	Ξ	8	⊙.	52	215	45	Α,	·o·	Q
	SUB ICHAL	. E.	, . .	. ~ .	-	8	. 13	·•·	<u>\$</u>	784	85.	8	286	26	0.	*∾⁻	.0.
· ·	*() * ()	· ··e	· · · c	· .c		·····	<u> </u>	•		• • • • • • • • • • • • • • • • • • • •	ģ	· ·c			·- <u>-</u>	· · ·c	8
STR ANIZATIONAL	DACs		o.o.	٥,٥,	5.0	· c		٠٥.	3 3	, o ·	ō	;	<u>.</u>	0	: s	, o,	0
	SUB :OIAL	.0.	٠٥,	۰.		2.	∞.	·o.	33	471	8	·o	767	2	·-·	···oʻ	
(Colab ta AR)	CONFRACTORS	· ·c	0			· •o	. ⊸ ၁	1		. 0			2900	0	0	, (o)	
THE ATER ARMY AREA			• -•-	•		• - •		•		· :	i. i						
16.17	IOIAL	. [2]		10	.5	217	73	36	316	1255	454	2940	4649	8 2	=	2.	121

				CHAIRLE T	CHAIRIR MASE - CONTRACTORS AT FIXED LOCATIONS	IONS AT FIXED	LOCATIONS		-					
		CONTR	ACTORS	•	:		1				• •	•		! :
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	2 - 3 -	£ -	MAIN	FUNCTIONS PERFORMED SUPPLY TRANS	RMED TOTAL	PERM.	PERMANENT PERSONNEL T SUPPLY TRANS	RSONNEL	TOTAL	TEMPO MAINT SU	TEMPORARY PERSONNEI 7 SUPPLY TRANS	PSONNEL	TOTAL
Abu Ohabi, UAF	IAM 3 Base	80	0	0		٦	73	a	ō	8	0	ō	0	
	CCBRO Corporation		. :	. ;	• •	: 		-			• -•		••	
	Honeywell Mistary Avionics Division	. ,	: .										- i	
	Johnson Controls World Services, Inc.				•			-			•			
	Martin Maresta Corporation					• • • •		••	1					
	Mr. Doniwill Exugicas Hectionic Systems			:	•								•	
	McDonnell Douglas Helicopter Company				•	•		•				• –		
	Rockwell international Corporation				•	•	:	÷-	-	:	• · ·	• · :	• • • •	:
	Sharts Brothers					- -	:	:	:		•	<u>.</u>	÷	:
					• -			•	•	:	-	<u>.</u>	• • • • •	
Ad Danmon, SA	. A V.	۵.	.0		- - -	3	74.	75.	[2]	201	TO	o	† <u>5</u>	0
	General Dynamics Sarvicos Company (2)				· -			•	• : !			: : !	•	: : !
	GTE Government Systems Corporation									.			• - • :	
-	· lexition Lycoming		: ·		•				-		• • •			
					· • -•	 		• •				·	•	
		:												:
		•	: ₀	0	: •••	0	8	9	· •	જ		0	0	0
	Automoted Research Systems			-		• -	:	• : :	•···-		-	• -	÷	:
	FMC Corporation			:	•	••••	:	-	-	1	•	• -	!	:
	Carrier Organics from Systems	,		:	•				-	!		• - :	•	
	CF-ASD		:	·	•	: •—	•	:	<u>.</u>	:	:	 -	÷	
	Cit Defends Systems Division					:	•	_	:	:	:	• -	•	:
	Highest Algorith Company (2)		•		:	. .	•		 :			•	• • • •	:
	Pentostor Electronics Inc	•	:			.		! !	-			• -	• - :	
	Textion Lycorning				•	:		<u></u> -	. –		•	•		į
		. :	•		i	-	. :		· •		· •	:	•	:
					•		- •	-					_•	
	I ACMIS RSC	· _ :	°	0	o [*] . :	· ·	~	0	0	7	o [.]	ō ⁺	ō†	:
	CCLInc			1		:		+	i-	; ;		:	:	į
	SUB-TOTAL		0	- 6:	60	3 24	115	37	2	3	· ·	~ ⊙	→	:
-			•		• - :	:		! —	<u>. </u>	,			•	
			:		: ! •	• • •		:	-			-		
AU JUKKANI SA	NA	~		0	·_'	:-:	5	0	0	7		G		
	General Dynamics Land Systems Division		:			;	:		:	!	•	•	-	:
	Litton Data Systems						-•	+		:		- -	:	i
	Wilbros Butter Engineers, Inc.		· -;		•		:	!		:		:	i	!
		•	•		•	•		:	-•· ;	:		<u></u>	4 -	ļ
Charlico SA	42	· •	· · · ·	•	∵'∾			ō	-:c	8	· o	- - -	•	
	Brown International Contouration		•		.	•		† !	•	:		-		!
	Evenett Equipment Inc.		:		•	:	:	-	<u>.</u>		•		•	<u>:</u>
	General Electric Aeruspace		:	: :	•						•		-	
	GTE Government Systems Corporation	: :			•	:			:- :					

			TABLE D-21 CHARLE PHASE - CONTRACTORS AT FIXED LOCATIONS	TABLE D-21 NTRACTORS AT FIXED I		: :	:		
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	CONTRACTORS US US FN FN	FUNCTIONS PERFORMED MAINT SUPPLY TRANS	RECRIMED TOTAL	PERMANENT MAINT SUPPLY	PERMANENT PERSONNEL T SUPPLY TRANS TOTAL	TEMPORARY PERSONNEL MAINT SUPPLY TRANS	PSONNEL TOTAL	₹
	Roy Meet Tactical Systems Roc Kwell Tactical Systems Division								
	475th Quarter Master Group Wilthox Butter Engineers Inc.	0 0 0		́е	701"	6	· o ·	· ·o: ·	ပ
	AMMC				· · · ·		· · · · · · · · · · · · · · · · · · ·		
	Mack Inck inc Osrkosh Inck Corporation			•				· · ·	
			;		: 1 ₈	! .	• •	• •	
	CECOM SRA APINC Research Corporation	o, o,	0.	o.	ຂໍ	0 54	o'	o' ·	-
	AYDIN Corporation Circling Historians Corporation			: :					
	Layung industries incorporated				• •				
	500 BO			- •		• •		, ,	
	Mil TOPE Corporation Metorida Incorporated		i		: :				
	SERVIAID INC. Its EX Tower Comparation	:	•		:			•	
							· · · · · · · · · · · · · · · · · · ·		
	Rumbow SRA #1	0 0 0		.0		1 0 - 16	- o · ·	;o•	0
			· · · · · · · · · · · · · · · · · · ·				:	: :	(
	IAMP Forward Aeromonitine Mediterranean Corporation	0 0	e -	0	26. 26.	5 '	o:-	ə [.]	5
	Bench Aerospace Service, Inc	: :		•	•		· · · · · · · · · · · · · · · · · · ·		
	Boving Harcopters CCBRO Corporation					-	• •	-• · -•	
	DyriCorp						• •	• -	
	General Instruments		• •		• •		• •	.	٠.
	Honeywell				:		•	•	-,
	Hogses				• •				
	III McDonnell Dzvigus Helicopter Compony		:						
	Northrop Petroleum Helicopiter Company							:	
	Scanders								7

CONTRACTORS US US FN US US FN TO 0 39 0 0 10 0 Ton Company Tondlon Had nc (2) Te 0 10 0 10 3 0 Te 1 Te 1 Te 1 Te 1 Te 1 Te 2 Te 3 Te 4 Te 4 Te 4 Te 4 Te 6 Te 6 Te 6 Te 7 Te 7 Te 7 Te 7 Te 8 Te 7 Te 8 Te 8 Te 9				TABLE D-21 CHARLE PHASE - CONTRACTORS AT FIXED LOCATIONS	TABLE D-21 NTRACTORS AT HX	ED LOCAL						
Sub-ObscandZhitoMau/Fixto Location Scientific Afrante Sub-Obscand Division Sitorsky Aercart Division Sitorsky infamorational Products Inc. Tost Research Sub-Total Beal Helicopter Textron Inc. NA Beal Helicopter Textron Inc. Beal Helicopter Textron Inc. NA Research NA NA NA NA NA NA NA NA NA NA NA NA NA			MIRACTORS US FN FN	FUNCTIONS PERFORMED	PFORMED		PERMANENT	K		TEMPOR	X ;	احانا
Scientific Altantic Sulorsky Alecraft Division Stlorsky Alecraft Division Stlorsky Interactional Products Inc. Task Research Sulb-Total Beawn International Products Inc. Beawn International Corporation General Divisions Services Company GE Geovernment Systems Corporation Laguna Industries Incorporated Corporation Laguna Industries Incorporated Corporation Laguna Industries Incorporated Corporation Laguna Industries Incorporated Corporation Laguna Industries Incorporated Corporation CECOM Forward ARING Research Corporation RAINBOW SIA #2 Manifect Field Engineering Corporation SUB-TOTAL NA McDonnet Douglas Helicopter Company RAINBOW SIA #2 Manifect Field Engineering Corporation SUB-TOTAL NA McDonnet Douglas Helicopter Company SERV-ARI Inc. NA NA NA NA NA NA NA NA NA NA NA NA NA	KED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	-	MAJHT SUPPLY	TRANS TOTAL	AL MAINT	INT SUPPLY	Y TRANS	TOTAL	MAINT SUP	SUPPLY TRANS	S TOTAL
NA NA Bed Helicopter Textron Inc. NA Bed Helicopter Textron Inc. Bed Helicopter Textron Inc. Bed Helicopter Textron Corporation General Dynamics Services Company GIE Government Systems Corporation Locyton Industries Incorporated Corporation Locyton Industries Incorporated Company Roytheon Corporation Missle Systems (2) Skorsky Inflemational Products Inc. Williams Builer Engineers Inc. CECOM Forward ARING Research Corporation RAINGOW SYA #2 Manifect Helid Engineering Corporation SuB-IOIA NA NA NA NA NA NA NA NA NA	:	Scientific Altonite Silcosky Aucraft Dydsion Silcosky International Products, inc. Task Research									·	
NA Bell Helicopter Textron Inc NA Brown International Corporation General Dynamics Services Company GIE Government Systems Corporation Loguna Industries Incorporation Loguna Industries Incorporation Loguna Industries Incorporation Natheories Systems (2) Skorsky International Products Inc Viet Cold Forward ARING Research Corporation RAINBOW SIA I? NA NA NA NA NA NA NA NA NA N		SUB-TOTAL	0 0 0	.0. 10.		- 25	351	9.	245	· io'	0	-5
NA Bell Helicopter Teatron Inc. NA Brown International Corporation General Dynamics Services Company GIE Government Systems Corporation Loguna Industries, Incorporation Rocheed Succeed Systems (2) Skorsky International Products, Inc William Corporation Missie Systems (2) Skorsky International Products, Inc William Corporation Ratingow state Ratingow	off Al Boilin, SA	¥	0 0 0		: : : :	~	7	6	-2	: :o	0	
Brown International Corporation General Dynamics Services Company GIE Government Systems Corporation Loguna Industrias Incorporation Loguna Industrias Incorporation Loguna Industrias Incorporation Rochreed Suspont Systems Inc. (2) McDonnel Douglas Helicopter Company Raytheon Corporation Missile Systems (2) Skorsky International Products Inc William State Engineers Inc CECOM Forward ARING Research Corporation RAINBOW SIA #2 NA NACONNEL Douglas Helicopter Company SERV.ARR Inc. NA NA NA NA NA NA NA NA NA NA NA NA NA		Bel Helicopter Textron Inc.						+	!			
General Dynamics Services Company GIE Government Systems Corporation Layuna Industries Incorporated Lacitneed Support Systems Inc (2) McDonnel-Doughas Helicopter Company Raytheon Corporation Missie Systems (2) Skorsky International Products Inc William Stores Inc CECOM Forward ARING Research Corporation RAINBOW SIA #2 Manifect Fleid Engineering Corporation Sulb.TOTAL NA McDonnel Doughas Helicopter Company SERV.ARR Inc. NA NA NA NA NA NA NA NA	(MC, SA	NA Brown International Corporation	0 0	0.	• -	<u> </u>	8	0	Ś	, w	0	
Loguna Industrias Incorporated Locitheed Succept Systems Inc (2) McDonneil-Douglas Helicopter Company Raytheon Corporation Missie Systems (2) Skorsky International Products Inc William State Engineers Inc CECOM Forward ARINC Research Corporation RAINBOW SPA #2 Monflech Field Engineering Corporation Sulli TOTAL NA McDonneil Douglas Helicopter Company SERV-ARR Inc. A NA NA NA NA NA		General Dynamics Services Company GTE Government Systems Corporation	•	· · ·	:	: :	·	• • • •		• • • • • • • • • • • • • • • • • • • •	;-+·	
McDonnell Douglas Helicopter Company Raytheon Corporation Missle Systems (2) Skorsky International Products Inc William Studies Engineers Inc CECOM Forward ARING Research Corporation RathBOW SRA #2 Mont ech Held Engineering Corporation SUB-TOTAL McDonnell Douglas Helicopter Company SERV-AIR Inc. A NA NA NA	•	Loguna industries, incorporated (ocitheed Support Systems, inc. (2)		• •		! : .	• • • •			· • · •		
Skorsky International Products Inc Wilbros Builler Engineers, Inc CECOM Forward ARNC Research Corporation Rath/BOW SRA #2 Monfech field Engineering Corporation SUB-TOTAL McDonnet Dougles Heticopter Company SERV-AIR Inc.		McDonnell Douglas Helicopter Company Raymeon Corporation Missle Systems (2)		· =		.				• •	· · · · · · · · · · · · · · · · · · ·	·_•··•
CECOM Forward ARING Research Corporation RAINBOW SRA #2 Monfech field Engineering Corporation SUB-TOTAL McDonnet Dougles Helicopter Company SERV-AIR Inc. A MA		Skorsky International Products, Inc. Willbros Builter Engineers, Inc.	: .	: .					: :	: . -• •		
RAINBOW SPA #2 Monifiech Field Engineering Corporation SuB-TOTAL INA McDonnel Douglos Helicopter Company SERV-AIR Inc. A NA		CECOM Forward APINC Responsible	0 0 0		- o:	<u> </u>	 -	0		.0.		ō
SUB-TOTAL INA McDonnel Dougles Helicopter Company SERV-AIR Inc. A NA		RAINBOW SRA #2 Manifect East Englanding Connection	0		- - - - - - - - - -	~	01	0	=	· · •o• · ·	· · · · ·	-+5+-
NA NACDonnell Douglas Helicopter Company SERV.AIR Inc. A NA				12		21		21	\$		0	
0	ng fond AFB. SA	NA McDonneli Douglas Helicopter Company SERV-AIR Inc.	0	2		~		0	•		- 	0
WIEDERS BURGET INC.	ng base Albha, SA	NA Wilbros Butter Engineers, Inc.			· '- o	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	10	o Io	0		· · · · · · · · · · · · · · · · · · ·	0
Log base Bastogne, SA NA 00 1 0 1 0 Withras Butter Engineers, Inc.	ng buse Bastogne. SA	NA WITDIGS Butter Engineers, Inc.	0			~	0	0	0	· - _o ;	0	_

				HARE PHASE	CHARLE PHASE - CONTRACTORS AT FIXED LOCATIONS	1 PXED IC	CATIONS						
		CONTRACTORS	3	R	RINCTIONS PERSONSED		7 28	PEDALA NEW! PEPSONNE		2	EMANCAGA VGA GOGALIT	Coopera	
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	a a	-	MAINT SUPPLY	٠,	TOTAL	MAINT SU	SUPPLY TRANS	STOTAL	MAINT	MAINT SUPPLY	TRANS	TOTAL
tos) txisia Brovo, SA	NA Willongs Butter Engineers, inc		-0 :	:	0	~	0	0	6		· o:	·o` · · ·	<u> </u>
Log twise Charle, SA	NA McDonnell Douglas Electronic Systems Manifech Reld Engineering Corporation Willbros Butter Engineers, inc.	·~· · · ·		in		· · · · ·		0	0	~~	0	0	
log txts fcho. SA	NA Wilthros Buller Enginners Inc		0		· o:		10		0	· ·	0	·o	-
A2.	NA Becwn International Corporation CCL Inc. CII Government Systems Cerearation Hughes Aircraft Company Roytheon Corporation Misse Systems (2)	0	8		-151		<u> </u>	10	0				0
	Reinbow \$1A #3 Maniech field Engineering Corporation cup total	; io' ' ' '	: 	<u>-</u> 4 - 4,	0				0	' 10' ' 10	7.00.7.6	· 'o' · · 'o	0
काट्सन्दा	SOFT CLIAL NA MUCK Trucks Inc Orthosh Inck Corporation		5' 									o o	~
301 A 1	TOTAL	83 3	0			137		<u>\$</u>	15 /84				- 60

		CHARTE	CHARITE PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	ATTOMAL LOCATIONS		• — • —	-	
		TRACTOR.						
FIXED LOCATION	OPGANIZATIONAL LOCATION	23 -	MAINT SUPPLY TRANS TOTAL	T. MAINT SUPPLY TRANS	TRANS TOTAL	MAIN	SUPPLY TRANS	TOTAL
	lst AD	0 0 1	5 2 0.	1/1	0	- 6	0	-
	Comman Dynamics Land Systems					: ;		
	General Dynamics Services Company (2)							
	McDonnell Dougks Helicopter Company			:		<u> </u>	; 	
	Texton Lycoming		•	:	:		:	
	•			· 	:	:	:	
						<u> </u>	; ;	:
		•	i c	1 2	¥		.c	
	A CONTRACTOR OF THE CONTRACTOR			;	: i		· · · · · · · · · · · · · · · · · · ·	
	Ahrnod N Albholl & Sons					-	· · · · · · · · · · · · · · · · · · ·	
	FMC Corporation:	-4			- 4		-4	-
	General Dynamics Land Systems				-	·	· -	
	Conord Dynumber Sawicos Comemo			<u> </u>	<u> </u>	• - i		
NAME: CA	Company Company Outputs the	-				:		-
ARIME. ST				-	-	:	: :	
	MCLonnell Douglas Helicopier Company	 -+				:	•	:
	Milt OPE Corporation	:						-
	:	:	• • • • • • • • • • • • • • • • • • • •	:		•		:
	-			- 1;			10	:
	J. 181.	0 0 0	3 2 0	2	5	خ ا	5 [†]	⊃ : :
	FMC Corporation			-				
	General Dynamics Land Systems							4-
	General Dynamics Services Company		-:				· 	
				: : : : : : : : : : : : : : : : : : : :	· · · · · · · · · · · · · · · · · · ·	:	:	:
-				:		+		
	I III ADA BOE		7		5	•	- 5*-	· ·
	Raytheon Corporation Missila Systems (3)	:	4		-+	-	-	
-	McDonnell Douglas Helicopter Company	-	:	- <u> </u> - -		!	:	;
							:	
				-	:		10	-
	'Otst AAO	o'.	o'	o :	5	<u>.</u>	5*-	5
	McDonnell Douglas Helicopter Company	:		-		:		!
		:				:	1	:
		- †c					:	ić
	Ad ACK	2 ·	0	·	5	2) : -
	FMC Corporation			1-		:		·
	Ceneral Lynchasts Land Systems	•		-			· •	; -
	GENERAL DYNAMIKS SONVERS COMPONY (4)	:				•	:	
		:	:	: i		•	-	
				- 01	•	ō	÷	0
	CALCACATION OF THE PARTY OF THE	:	:	1		:	!	! :
	Constraints Source Company			-	-	:	-	:
	Office Continues Systems Corneration					:	· -	
		:					i • -	: :
		- : : : :		· · · ·		-		! !

Comparison Com			CHARU	CHARLE PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	A II CHIAL LOCAIRCHS		-	-	-	
MANING SERVICES CONTINUES SERV			TRACTORS	Carracte as swort Christ	SOUTH		<u> </u>	TEMBOORADY IN	COCCOMME	. :
And Six As a Circle Outpounds: Services Outpounds: Services Company (d) Outpounds: Services (d) Outpounds: Services (d) Outpounds: Services (d) Outpounds: Services (d) Outpounds: Services (d) Outpounds: Services (d) Outpounds: Services (d) Outpounds: Services (d) Outpounds: Services (d) Outpounds: Services (d) Outpou	FIXED LOCATION	OPGANIZATIONAL LOCATION	d 1	SUPPLY TRANS	MAIN		MAIN	SUPPLY	. 1	TOTAL
A Service Composition A Se		24th iD	0	6 2 0	:	0	61		0	0
Observations Services Comporty (3) O O O O O O O O O		Elektronic & Sound Control	-:		-	!	-	:		
Controlling Services Company (2) Services Company (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3) Services (3)		FMC Corporation		•	:			- -		-
Opposition of Dynamics survived Systems a Chromitists survived Company (2) 11 (Committed Systems a Company (2) 12 (Company (3) 13 (Company (3) 14 (Company (3) 15 (Company (3) 16 (Company (3) 17 (Company (3) 18 (Compan		CANACI Dyramines (Card Systems Canacid Dyramines Septems Company (3)		• • • • • • • • • • • • • • • • • • • •		:	 -		- .	
Opporation of Community Systems of Opporations (1 and Systems) of Opporations (2 and Systems) of Opporations (2 and Systems) of Opporations (2 and Systems) of Opporations (2 and Systems) of Opporations (2 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) of Opporations (3 and Systems) operations (1	1			:	:	•	
Copposition Copposition		•	:		:		: 	:- :-	- -	
Open composition Open compos		3rd ACR		2 2 5	, 0	0	Ξ		•	
O	-	FMC Corporation					: . 	•	·-·	
Objective Obje		General Dynamics Land Systems						· - •	•	
Or Dynamics Lend Systems Or Dynamics Services Company (2) Or Dynamics Services Company (2) Or Dynamics Services Company (2) Or Dynamics Services Company Or Dynamics Services Company In Order Teatron inc Order		General Dynamics Survices Company (2)						:		
Obmanics Land Systems		Textron Lycorrung		:	·	:	:	-• :	÷	:
a Dimannics tord Systems of Dimannics Services Company (7) of Dimannics Services Company (7) of Dimannics Services Company of Dimannics Services Company of Dimannics Services Company in of Dimannics Services Company in of Dimannics Services Company in of Dimannics Services Company in of Dimannics Services Company in of Dimannics Systems in of Dimannics System			:	:			!			,
a Dynamics Swakew Company (2) of Dynamics Swakew Company (2) of Dynamics Swakew Company by Abc Cth I at the I lead of the I l		UV Pro	c	T	:	· · · · · · · · · · · · · · · · · · ·			Ċ	
######################################		and and and and an and an and	· ·	,	:	!	,	; -	; ;	,
######################################		Constant Company Company			:	· 		•	:	
Spier Teathon Inc. Spier Teathon Inc. Spier Teathon Inc. Spier Teathon Inc. Spier Teathon Inc. Spier Teathon Inc. Spier Teathon Spier Sp		GT: Government Systems Corporation	:	•		1	:	† ~	:	
# Dougles Electronic Syndamics Services Company # Dougles Electronic Systems # Dougles Electronic Syst				• - •						•
# Douglics Electronic Systems # Douglics Electronic Systems # Douglics Electronic Systems # Douglics Electronic Systems # Douglics Electronic Systems # Douglics Electronic Systems # Douglics Electronic Systems # Douglics Helicopier Company Continential Motors # Douglics Helicopier Company Continential Motors # Douglics Helicopier Company Continential Motors # Douglics Helicopier Company Continential Motors					;	: : : : :	- <u>-</u>			(
young sances Company # Douglaz Electronic Systems # Douglaz Electronic Systems Corporation Missie Systems Corporation Missie Systems The contract of the con		82nd ABU	o .	o •	:	5	o :	o.	5	
M Douglics Helicopiler Company Confirmental Motors M Douglics Helicopiler Company Confirmental Motors M Douglics Helicopiler Company Confirmental Motors M Douglics Helicopiler Company Confirmental Motors M Douglics Helicopiler Company Confirmental Motors M Douglics Helicopiler Company Confirmental Motors		Osbers Durantia South of Osbers	•		-			:	•	
Corporation Missie Systems Comparison Missie Systems The confirmental Missie Systems The confirm		McDombell Danalca Electronic Systems	:	• • • • • • • • • • • • • • • • • • • •	: _i.		:	•	•••	
Curporiation Missile Systems Curporiation Missile Systems Curporiation Missile Systems Curporiation Curporiation I 0 0 0 1 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0	-			•	: 	!	- :	· ·	:	
ODC CN/Incompany 1 0 0 1 0 0 1 0 0 1 0				• • • •			· 			
Curporation Missie Systems ments ments innment Systems Corporation Il Douglus Helicopter Company Continental Motors Il Douglus Helicopter Company Il Douglus Helicopter Company Il Douglus Helicopter Company Il Couglus Helicopter Company Il Couglus Helicopter Company Il Couglus Helicopter Company		IF 8 43/32 ADCOM		0	~ [~]	· i	~:	o*	o:	•
ments intrinent Systems Corporation intrinent Systems Corporation in Douglus Helicopter Company Continental Motors If Douglus Helicopter Company in the continental Motors Continental Motors Continental Motors		Rayethon Corporation Missie Systems	:			· ·	· :		. .	
# Mough's Helicopter Company Continental Motors Continental Motors Continental Motors Continental Motors Continental Motors	-	:			· ·	· · ·	: 			
If Douglas Helicopter Company Continental Motors Continental Motors Continental Motors 1		III Curps Fiements	· ·oʻ	0 1	~	0	:-		0	
# Douglus Helicopter Company Continental Motors In C. 0. 2. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.		GIE Government Systems Corporation	-:		•	:			:	
Douglus Helicopier Company 2 1 0 0 0 3 2 2 0 0 0 7 1			:	•	-		-	:	•	
Continuental Motors Continuental Motors Li C 0 2 0 0 2 1 0 0 1 1 1 Continuental Motors		VII Corps	2 1 0 0	3 0 0	3	0 0		0	· o	-
Contributed Motors Contributed Motors Contributed Motors 1		CCLING		· · · · · · · · · · · · · · · · · · ·		:			:	
Continental Motors In 1 6 0 2 0 0 2 1 0 1 1 Continental Motors		McDonnell Douglas Helicopter Company					· ·			
all Douglas Helicoptor Company Contrinental Motors		Teladyna Continental Motors					-		•	
all Douglas Helicoptor Company Contrinental Motors			•		· ·	.i	<u>:</u>	•	:	
McDonnell Dougks Helicoplor Company Telectyne Contraintd Motors		XVII ABC	· o	2 0 0	: : - !	: : !		0	:o'	_
Telectyne Continental Motors	-	McDonnell Douglas Helicopter Company		•			-	:	•	:
		Teledyne Continental Motors	:	• • • • • • • • • • • • • • • • • • • •		- -			•	

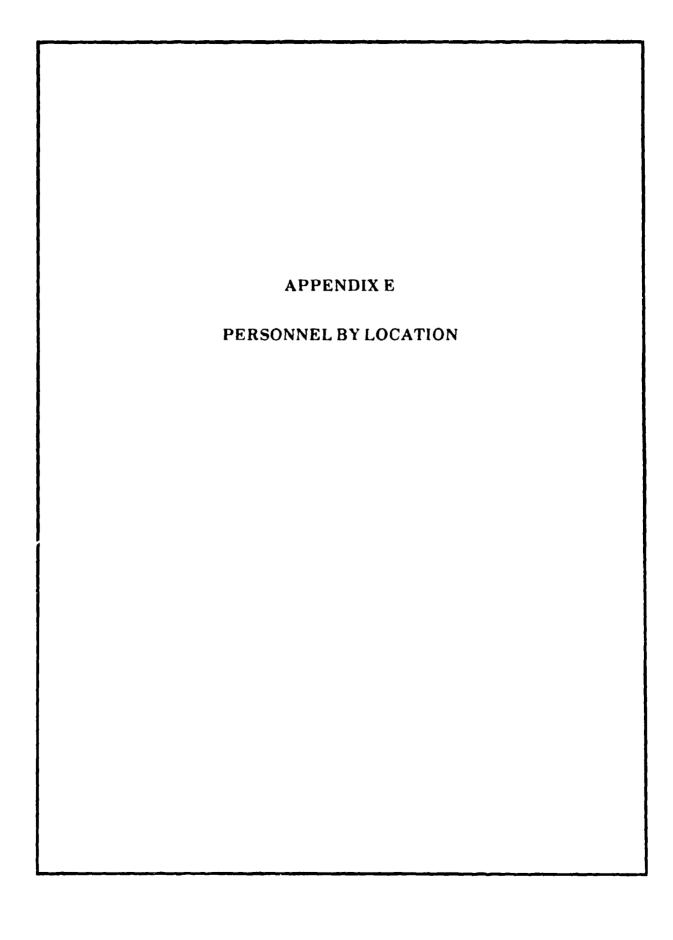
						TABLE D-22	_			-	-	-	_		
:			CHAIR	JE PHASE -	CONTRACT	ORS AT OR	GANIZANC	CHARLIE PHASE - CONTRACTORS AT ORGANIZATIONAL LOCATIONS	\$						
-		CONTRACT			:	:						:			
•	* ·	3	E	2	UNCTIONS P	PERFORMED		2	PERMANENT PERSONNE	PSONNEL		2	EMPORARY PERSONNEL	ERSONNEL	
RIXED LOCATION	ORGANIZATIONAL LOCATION	-	-	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAIN	SUPPLY	TANS	TOTAL
	£.49	10	0			- jo	2	ñ	<u> </u>	- 6		0	Ö		1
	General Dynamics Services Company	* 	•	:	: :			 - L							
	· · · · · · · · · · · · · · · · · · ·	÷-†	-		. . .	1 1	1 - 1,1 1 1 1		1				!		
	ATTO	- S	ō.	ς,	0	ο,			5	o† :	-	0	5 !	5 ;	
	Beil Helicopter Textron inc.	• • -			!			:	-	:					
	DynCorp	• -							 						
	McDonnell Jougics Helicopiler Company		<u>.</u>						i				-		
:		i e	: :° ;		.~	Ö	0	02	-	-0	Ξ.		0	0	; ; ;
	General Dynamics Land Systems				· ;				• • • • • • • • • • • • • • • • • • •	:					
• •	General Dynamics Services Comapny		!					. !	- -	<u>:</u>		!	!		<u> </u> -
:	GTE Government Systems Corporation	-	· -•	-				!	!				1	-	! !
	Litton Data Systems (3)		!			1	!			-					, : , :
	Textron Lycoming	• +						 				-			
:				-				-	-	-					
TOTAL	TOIAL	: :	 6	3	18			175	10	82	210	91	0	0	-

			CHARUE PHASE - DACS AT FIXED LOCATIONS	Anows				:	
		CONTRACTORS			-		-		
FIXED LOCATION	SUB-ORGANIZATIONAL/FIXED LOCATION	US US FIN FIN	FUNCTIONS PERFORMED MAINT SUPPLY TRANS TOTAL	MAINT	PERMANENT PERSONNEL T SUPPLY TRANS	WEL TOTAL	TEMPORARY MAINT SUPPLY	TEMPORARY PERSONNEL	TOTAL
Atra Dratte UAF	IAMP BISG		0 1		-ئىزا	∤ ∴	ian	lo	0
			4	:	<u>.</u>	:		•	:
Act Dorrman, SA	ASC: SWA	: :		300	8	005	'o'	0	0
	MET SA			8	8	35	- o	0	-6
	SUB OTAL		2	- <u>8</u>	92	0	o'	0	0
			:		-		 .		:
Ohahran, SA	AMC SWA		0 1 0	70		0	-o	0	0
	(AM ^D -Forward	; ; ; .	0:	<u>ŏ</u>	7 <u>ē</u>	0 37	-o'	.0.	:
	SUB-ICITAL		2	<u>.</u>	8	30	0		0.
V	V 12		:		; ; ;		· · · · · · · · · · · · · · · · · · ·		
			5. · · · · · · · · · · · · · · · · · · ·		; ; ; · · ·		o' :	o	2
log base Alpha SA			10	76 ¹		4	· · · · · · · · · · · · · · · · · · ·	· · ·	-0
legitars Bestegne, SA			00		7	0	· · · ·	· · · · · · · · · · · · · · · · · · ·	
LINJ LKISH BITNO, SA	. \$.	: ; : ;		· · · ·	-	0	: [o]	· · · · · · · · · · · · · · · · · · ·	c
Log txise Challe, SA	¥			2		0	· · · o	· ·o'	
logthrs Delta SA	₹ 2.		:	- 2	1 - N	0	0		ō
Couterso Echo, SA	NA.				2	0	· ·	· · · · · · · · · · · · · · · · · · ·	0
Piekster.	٧v				! o 	0	: : : : : : : : : : : : : : : : : : : :	· · · · · · · · · · · · · · · · · · ·	
for á t	IOTAL	0 0 0 0	14) 15 0 29	472	208	077 0	- : o	0	-

						2	ABLE D-24		-		_						_
		•		֖֓֞ ֓֞֞֞	JAPLIE PHAS	K - DACS A	CHARLE PHASE - DACS AT ORGANIZATIONAL LOCATIONS	ATIONAL	OCATIONS	-			<u> </u>	!			_
	-		CONTRACTORS		-	 	MACTORS	1									,
Ē		-	US US FN FN	Z	∵ ∄	FUNCTIONS PERFORMED	PFORMED		£34	PERMANENT PERSONNEL	PERMANENT PERSONNEL		9	TEMPORARY PERSONNEL	ERSONNE	<u> </u>	
PIXED LOCATION	ORGANIZATIONAL LOCATION			-	MAINT	SUPPLY	MAINT SUPPLY TRANS TOTAL		MAJNT SUPPLY TRANS TOTAL	SUPPLY	TRANS	TOTAL	MAINT	MAINT SUPPLY TRANS	TEAMS	TOTAL	_
=	₩.	_	- -	Ī.	ο.	ō.	٥	0	ō	ō	С	0	ō	0	o'	0	16
	•	:		•		!				:	;	:		:	1		
OIA		:	ے۔ ت				c	-		Ċ	·	-	- c	ic	i		

PERSONNEL TOTAL MAINT SUPPLY PER 2000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			CHARUE	TABLE D-25 CHARIE PHASE - CONTRACTORS AT CORPS REAR/THEATER ARMY AREA	TABLE D-25 MPS AT CORPS REAR/IN	HEATER ARM	r AREA					
ORGANIZATIONAL LOCATION US US FIN FINCTIONS PERFOCINED PERMANNEL SUPPLY TRANS TOTAL MAINT			DACTO		- :				. :	!!!	: :	
ORGANIZATIONAL LOCATION P			55 ES EN EN	FUNCTIONS PERFC		. &	AANENT P			TEMPORARY	PERSONNEL	IATOT
NA Abduleh A M Alkhodoxi Est Abduleh A M Alkhodoxi Est Abduleh A M Suman Murini Est Al Awor Incating Est Al Awor Incating Est Al Awor Incating Est Al Aword Incating Est An Aword Incating Est An Alke Roule Est A	FIXED LOCATION	OFGANIZATIONAL LOCATION	T 6	SUPPLY	- [- 4		2	4,		1.	
Abdullah AM Ali Khadari Est Adii Al Misahus Adii Al Misahus Ali Suesh Alumini Est Ali Advari Industrig Est Ali Advarian Contract ting Ali Surianany Melial industries Ali Surianany Melial industries Ali Surianany Melial industries Ali Surianany Melial industries Ali Surianany Melial industries Ali Surianany Melial industries An Ali Surianany Melial Info Bandar Information of Dali Surianany Melial Info Bandar Information Ali Adub Co LID Industries Info Information Ali Adub Co LID Information Ali Adub Co		AN	0 0 0	0		•	0		3) :	oʻ.	
Adil Al Mischoul Au Suben Alizmir (1st Au Askor Tricking Est Au Akor Tricking Est Au Subrocy Metal industries Au Androod Tricking Est Au Zhick Raillo Est Au Zhick Rai		Abdullah A.M. Al-Khodarl Est		:	:	÷	:		+		!	:
Au Sub-in Algunia (St.) Al Asker floating Est. Al Asker floating Est. Al Morpoum Conflicating Al Surricory Meltal industries. Al Worker Railo Fst. Authority Railo Fst. Authority Railo Fst. Authority Railo Fst. Authority Railo Fst. Authority Railo Fst. Authority Railo Fst. Conflict Rail		Adii Al Misehol		:	•	-	+	-1-				:
Al Asker fleading Est Al Magram Contracting Al Surreany Metal industries Al Matrical Flest Authoritional Data of transcort Co Foreal Unes Guil Bridge Est Humoud Brashim Al Alab Co UID Ibrahim Al-Quarterii Est Lykies Lines Seadand		All Suleh Alomin Est	!	:		:	Ţ	!	: :	i :	- : :_	:
At Magaim Contracting At Surricony Metal industries At Mathood finading Est At Methood finading Est At Method Fist At Microsoft Co Bandor international Dollah franscort Co Foreal Unions Guil Bidge Est Humoud Brachtim At viab Co LID Ibrahim At Questioni Est Livius Lines Seasonal		Al Askor Troding Est	-:	- • - •		:		-	: -			:
At Stringory Metal Industries At Mathood Industries Au Wathood Industries Authorian President Lines Bandor Interpretational Dallor Interpretational Dallor Interpretational Dallor Interpretational Dallor Interpretational Exercise Living String Stri	:	At Magam Contracting		· · · · · · · · · · · · · · · · · · ·	:			-			•	:
At Manood Toding Est Au Zhick Ruilo Est Amarican President Lines Bandor International Bandor International Bandor International Bandor International Continue Lines Guil Bandor Est Humoud Excellin Audo Co LID Incenim Al-Questoni Est Livius Lines Sectond		Al Shunony Metal Industries	- •			:	1	-	: :	!	:	
Au 7hick Rulio Est Amarican President Lines Bandar International Bandar International Bandar International Contact International Exercise Lines Events Lines Sectional Events Lines Sectional		Al Matrood Trading Est	:		-:-	:	-!-	-	: <u>:</u> 			:
Amarkon Pesiden Lines Bandar International Bandar International Dallas Transcort Co Foreal Lines Guil Bidgo Est Hunoub Bidgo Est Hu		Au 2hick Rullo Est	•	:	-1-	-!	:			ļ	:	
Bandar International Dalich Transport Co Farrel Unes Guil Bidge Est Humoud Excitain At Aub Co LID Ibrahim Al-Quotoni Est Livies Lines Sectional		American President Lines		: : : : : : : : : : : : : : : : : : : :	:	!	1		i	-	:	:
Cortal Unes Guil Bidge Est Humoud Bidge Est Humoud Bidge Est Uvies Lines Section On 17 0 0 0 17 17 17		Bandar International			:	1	!		-		: ! !	
Fortial Unes Guil Bicage Est Humoual Exception At Alab Co. LID Disciplin Al-Questoni Est Livius Lines Sectional	-	Dalich Transport Co		-:	: !	-†-	1	:	!	i :		
Guit Bidge Est Humoud Ibrahim Al didb Co LID Ibrahim Al-Quetanii Est Livius Lines Sectional		Forrell Unes		: : : : : : : : : : : : : : : : : : :	: : :	- -	!		: -	 	• -	
Humoud Bochim Al-Auctorii Est Uvkes Lines Sectorid	-	Gult Bridge Est		: : : : : : : : : : : : : : : : : : : :	:	.i. !	•		<u>!-</u> !		-	
Use Lines Sector of 17 0 0 0 17 0 0 0 0 17 0 0 0 17 0 0 0 17 0 19 0 10 10 10 10 10 10 10 10 10 10 10 10 1		Humoud lordhim Al Ado Co LTD	- 1		:	•	!	-	!	-		
Sectond 0 0 17 0 0 0 17 17 0 0 0		locanim At-Questoni Est.	- !	i i	: : :	!	i :		!		:	!
0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 0 1/1 0 1/		Lykus Lines			-• !	1	† :	· · · · · · · · · · · · · · · · · · ·	!	!	: -	
		Sectional	:	:	:	•	:	† † † † † † † † † † † † † † † † † † †	:	! -		
			- 12 - 10 - 10	0	(1 21	†o	<u>Г</u> О	2900	2000	0	0	

			 			IABL	TABLE D-26	-	-	-						
				.		CHARUE PHASE - SUMMARY	SE - SUMMA	. ≽	† ···	-	 -				-	!
		:	CONTRACTOR	. ~	1	! ;		-	-							
		-	32 S3	2	FUNC	FUNCTIONS PERFORMED	XPARED	!	PERM	PERMANENT PERSONNE	POWNEL	-	- <u>F</u>	TEMPORARY P	ERSONNEL	ī !
LOCATION	CONTRACTORS/DACS		-	-	MAINT	SUPPLY III	TRANS TOTAL	-	RAINT SE	SUPPLY	TRANS	MOI	MAIN	SUPPLY :	TEANS	TOTAL
0.3%	CONTRACTORS		83 13	0	64	8	٥	137	620	149	15	784	15	ō	6	18
ORGANIZATIONAL	CONTRACTORS	: : : : : : : : : : : : : : : : : : : :	=	<u>.</u> .	8	90	_	8	175	2	25	210	15	 	0	35
	SUB-TOTAL		136 24		9	52	Q.	222	8	<u>S</u>		78	, ,	c	- ē	::
						•	,_	: '				-	!	!		
: Q 3X1 s	DACs		· · · · · · · · · · · · · · · · · · ·	· 6	14	. 51	70	- 8	472	8		770		-	ē	
ORGANIZATIONAL	. DACs	:	0	· 6	0	0	0	.0	0	0	0	0	ō	łō		0
:	SUB TOTAL		0	· ·	14	. 52	ō	8	472	8	0	0//	10		ō	
CORPUEAR	CONIBACTORS			-†· → <u>-</u>		: · · ·			. 70	+ 1			1 6		10	
THEATER ARMY AREA		: ;	, , ,	· · ·		!	-	i :	5	5	3	3	5	5	5	
IOIA!	TOTAL		136 24 1	9 0	174	. 19	_ 27	: 508	1367	457	2940	1864	8		9	S



PERSONNEL BY LOCATION

In this appendix, Table E-1 shows the numbers of permanent and temporary personnel located at each fixed location, organizational location, and Corps Rear/Theater Army area identified in the study. The number of U.S. contractor, foreign contractor, and Department of Army Civilian (DAC) personnel is broken down by functional area for each phase. The table is ordered by fixed locations, organizational locations, and then Corps Rear/Theater Army area. Also, at the end of the table, all personnel totals are summed together in a field entitled: "Total."

In the table header, the following abbreviations are used: "Maint" for maintenance and "Trans" for transportation.

						TABLE E. I	1.93									
					8	PERSONNEL BY LOCATION	10CA71C	N.								
		INITIAL	¥			AIPHA				BRAVO				CHARUE		
LOCATION	MAIN	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT S	SUPPLY TRANS	1	TOTAL
Abu Dhabi, UAE Permanent							•									
55				* 3				देहें '	22	6 0 (0	8		c	0	6
0000 0000	o ~	· ·	00	ऽच	•	သ လ	0	<u> </u>	⊃ •0	o 40	0 0	5 =	o •0	0 9	00	o <u>=</u>
Total	2,			4C			0	8	78	13	O	16		13	0	8
Temporary																
Sn				3		0	0	5	0	c	0	5		0	0	0
Foreign	0 0	0 5	00	00	00	o c	0 =	<u> </u>	0 0	0 0	0 0	00	0 0	o c	00	0 c
Total				O		0	ာ	כו	О	0	0	0		၁	ြ	0
Ac Damman, SA Permanent				Ξ	ā	77	Ξ	9	¥	2	ä	07		2	2	3
S. S. S. S. S. S. S. S. S. S. S. S. S. S					5 •	; c	: =	a	2 =	3 C		2		₅ =	<u>.</u> c	} =
DACS) 6 0	0	- 3-	° &	8	0	360	36	% %	0	65	98	° 92	0	3
Total	76			121	ž	187	=	3	487	83	Ξ	161		2	2	814
Temponary						•	c		ć	c	c			c	c	
Foreign				5	0	0	0 0	5 5	0	9	0	5		00	00	5 5
DACS	0 0		0 0	00	00		00	5 5		00		00	0	00	داد	00
US US				ີດ	4	0	0	4	2	0	0	7		0	0	-2-
Foreign	00	ນ 0	00	00	00	00	00	00	၁ 0	00	00	00	00	0 6	00	00
Tolai	0			3	4	Э	0	9	2	0	0	2		0	0	7
Temporary					-		c		-	-	c			c	-	Č
roeign Foreign	- 0	-	- 0	- 0	- 0 !	0	0	5 5	- 0 :	- 0	00	, 0	- 0 (00	0 0	100
DACS				5	2 8			ets 	2 8	- -	0	2 2			-	2
500		1					,				,			,		

							Ž	TABLE E-1									
						FERS	PERSONNEL BY LOCATION	1 to CAB	ð								
			INITIAL				ALPHA				BRAVO	0			CHARLE	*	
LOCATION		MAINT	SUPPLY TRANS	PANS 1	TOTAL	MAINT	SUPRY TRANS		TOTAL	MAINT	SUPPLY TRANS		TOTAL	MAINT	SUPPLY TRANS		TOTAL
					!							ł		1		1	
Dhahran, SA	Permanent US	61	8	2	242	300	≂	c	380	345	8	m	438	٠,	5	m	24
	fæeign DACs	00	၁ထ	٥٥	2 2	0 E	0 4	э o	<u> </u>	0 2	၀ ဆွ	00	0 8		° 8	00	<u> </u>
	Total	2	15	2	32	327	33	n	415	ž	<u>5</u>	3	472		٥	6	8
	Temporary	-	c	c	<u>-</u>	ď	c	S		•	•	c	_			c	
	Foreign	- 0 (000	00	- 0 (n 0 (00	00	000	700	000	000	100	000	000	000	000
	Total	0 -	0	٥	5 -	0 8	٥٥	0	2 3	⊃ ₹	5 0	5 0	্যৰ				٥١٥
														,		 	
Haffr AJ Baffn, S.A.	Permonent US	•	0	0	-	-	0	0		2	0	0	~	, , c4	:	0	2
	Foreign	00	00	00	00	00	0 0	00	00	0 0	00	00	00		ଦ ୦	ရ တ	00
	Total	0	0	0	0	-	0	Э	-	2	0	0	7]	201	2
	Femporary US		0	0	ō	0	0	C	- 6	0	0	0	0		:	3	0
	Foreign	00	00	00	<u>೧</u>	00	00	00	00	00	00	00	00	00	00	၁ 0	00
	Total	0	0	0	0			0	0	0	0		0			0	°
		·- <u>-</u>															
KICIAC, SA	Permonent US	33	2	0	33	23	55	~	8		\$	-	78		12	0	\$
	Foreign DACS	00	o o	00	00	00	00	00	<u> </u>	ဝန္က	o ~	00	۵ ۾	၀ နွ	o ~	c o	<u>o </u>
	Total	23	02	0	2	23	15	-	క్ల		2	-			13	0	8
	Temporary		d	-		•	d	•	-	9	-	c	-		c	-	•
	50.60 50.60 50.60	× 0 0	000	- 0 0	750	000	000	70 0	000	5 o c	- 0 0	900	00	, 00	000	- o c	700
	Total	\^ 		· -	7			2	8	9	· -		=			-	

:

				ł			3	TABLE E-1			Ì						
						ž	SONNEL	PERSONNEL BY LOCATION	NO.								
			INTIAL	₹			ALPHA	3			BRAVO	9			3	CHARLE	
LOCATION		MAINT	SUPPLY TRANS	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRAKS	FOTAL	MAINT	SUPPLY	TRANS	FOTAL
	,								_								
Amy rand Aris, SA	US Foreign	a c		00	0												
	DACs	015	ء اد) = C	0 0) o c) 0	5 5 6	00		0 0			0 0	000	0 0
	lemporary										<u> </u>						
	Foreign	- 0 0		2 2 0	- 57	- 5 0) ;	= 0 5	- 0 0	, o	00	00	V D C		- 00		- 0 0
	Total			0	1					2	0	C					
tog bare Alpha	Permanent US Franks	0		0								 					
	DACS	00	00		00	2 4	2 2	00	7 9	2 4	2 2	0 0	40		2	2 (0 4
	Temporary US Foreign DACs	000		000	000			000	400	\$ 0 0		000		900			0 0
	Total	0		0	0												
Log base Bartogne	Petronent US Foreign DACs	000	000	000	000	000	000	000	004	000	000	000		004	000	000	င္းက
	Total	0		0													
	Tempocrany US Foreign DACs	500	0 0	~ O	0	- 0 0	0 0 0	- 0 0	0 0 0	-00	000		-00	~ 0 0	000	000	-00
	Total	0		~			1										

							X	TABLE E-1										Γ
						1	ONNE!	PERSONNEL BY LOCATION	NOV									
			INITLAL	7			ALPIA	S			REAVO	8			5	CHARLE		
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRAMS	POTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	II SUPPLY	TY TRANS	S JOIAL	Z
log base fravo	Permanent US			0	0		0			0	0				0	0	0	0
	Fa ego DACs	0 0	0 0	0 0	0 0	7	2	0 0	0 4	2	2	0		O 4	2	2	0	O 4
	Total	0		0	0		2			2	7				2	2	0	٩
	Temporary US			0	5	-	^			6	-				_	0	0	
	Foreign	00	00	00	0 0	00	00	00	000	00	00	00		00	00	00		70
	Totol	0		0	0	-	-			9 6					> -	0	0	7
Log base Charle	Pemanent																	
	SD ,	0		0	0	0	0			~	0			~	- (0	0	-
	Faeeon		0 0	00	00	00	00	00	00	0 14	0 ~	00		5 4	o ~	0 8	00	0 4
	Total	°		0	0		°			4					6	2	0	8
	Temporary US Fareign DACs		000	000	000	000	000	000	000	~ 00	~00	000		~ 0 0	s 0 0	000	000	400
	Total	0	0	0	0	0	0								5	0	0	S
(og base Delta	Pernament																	
	S,	0		5	0 :	0	0 (0 (<u>~</u>	0 (0 0	0 0	
	1080 0A0	00	00	0	30	o ~	۰ ۵	- 0	→	o ~	o ~	00		5 4	o ~	o ~	00	5 4
	Tokal	0		င	0	7	7			2					7	2	0	٩
	Temporary US			0	0	0	0			0					0	0	0	
	Foreign		00	00	00	00	00	00	00	00	00	00		00	00	00	00	
	Total	0		0	0		0								0	0	0	٥

							Z	TABLE E-1			l						
						FER	SONNEL	PERSONNEL BY LOCATION	NO								
			INTTAL	¥			ALPHA	*			BRAVO	Ş			₹	CHARUE	
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	, TRANS	TOTAL
									-								
log base Echo	Permanent US Foreign	• • •		00	00	00				00	00				00		00
	DACs	0	0	0 0	00	0 0	0	0	00	2	2	0		9 9	2 2	2	0 0
	Temporary US	0		0	5	0				7	_				_		
	foreign DACs	00	00	000	000	0 0	000	0 0	000		0 0			00		0 0	00
	Total	2	ļ	٥	3	ا ا	ĺ			7	-						
Byodh, SA	Permonent US Foreign DACs	~00	000	000	800	~00	000	000	~00	200	~00	000	- 500		<u>4</u> 00	-00	000
	Total	2		0	2	1	0	^		12	-				4		0
	Temporary US Foreign C.A.Cs	- 0 0		-00	200	-00	000	-00	000	~00	000			e 0 0	0 0 0	0 0 0	000
	Total	-		-	2	_	٥		2	2	0				0		0
Decree	Permanent US		0	0	6	0	0	0		0							0
	Fare DAC C	00	00	00	00	0 0	0	0 0	0 6	9	0 0	0 0		0 8	0 7	00	00
	Total	0	Э	0	٥	0	0	0		8					_		0
	Samporary US	- ;	0	0	- ;	21		0 (a o		0 (~ (0 (
	DACs	0	0	0 0	0	0		0	> -	0						s	
	Total		ס	0		21	3	0	15	•				6	2		

							Z	TABLE E-1	l	l							
						ä		MODE OF THE PARTY BY LOCATION	ě								
									5								
			INITIAL	-			ALPHA	_			BRAVO	Q			CHARLE	PLE	
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY TRANS		TOTAL	MAINT	SUPPLY	TRAKS	DIAL	MAINT	SUPPLY	TRANS	TOTAL
7 YO	Permanent SS	0	၁	0	6	2	-	0	~	~	-	0					
	foreign DACs	00	00	00	00	00	20	00	00	• •		00	00	00		000	00
	Total	0	0	٥	3	Q	-	2	[2]	2		°					
	Jemporay		c	c		ć	c		-	•							
	Foreign	0	0	0	00	00	0	0	50	0	0	0	50	- 0	-	0	- 0
	DACs	٥	0	0	Э	0	٥	0	0	0	٥						
	Total	0	o	0	0	ū	0	0	0	0	0						
I# CAV	Pernanent		•	•		;	c	:		\$	•	•					
	60 60 000 000 000 000 000 000 000 000 00	300	000	- 0 0	300	300	N 0 C	- ද්රී ද	8 % 3	200	- 0 0	2 C	3 % 0	200	- 0 0	- %	<u> </u>
	Total	35	9	-	3	3	7	2	8	3) 	3	ı				
	Temporary	•	٠	, c		<	-			\ \ \			İ		ļ	}	
	Foreign	00	00	000	00	000	000	000	00	000	000	000	000				00
	Total	4	0	0	্য ব	٥٥	0	0	5 0	٥٥	0						
														_			
2	US	0	0	0	0	s	_	0	-0	S	-	0					
	Foreign DACs	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	Total	0	၀	o	٦	S	-	0	9	5	~	0					
	Temporary	•	•	•	- (•	•	•	-	•	•						
	Foreign S	- 0 (000	000	000	o 0	- 0	0	000	400	000	000	000				5 6 6
	Total		0	-	5 0	~	-	0	5 0	2 4	90						
																l	

							3	TABLE E-1									
						ž	SONNEL	PERSONNEI BY LOCATION	MON								
			INITIAL	7			ALPHA	3			BRAVO	9			CHARLE	5	
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL
11m ADA BDE	Permanent US	2	0	Đ	2	4	0			4	C	o		•	c	c	
	Foreign	00	00	9 0	00	00	000		00		000	000	0.0	00	996	000	00
	otol	2	Э	C	2	4				١		0	9	4	0	0	9
	Temporary (15	•		c		c				c	c	c				c	-
	Foreign	000	00) ; ;	000	000	000	000	000			000	000	- 0 0	000	000	- 0 -
	Total	0			0					0		0	0		0		-
12th AVN BOE	Permanent US	5	0	0	0	0	0			0	0	0		0	0	0	0
	Foreign DACs	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	Total	0	Э		٥	°				0		0	0	0	0	Э	٥
	Temporary US	~		0			0			-	0	0		0	0	0	0
·	Foreign DAC:	00	00	00	5 6	00	00	0 0	00	00	00	00	00	- 0	00	00	<u>0</u> 0
	oloi	-		0	-	-	0			-	0	0		0	0	0	0
	SD	7	-	0	ñ	2	_			0	0	0	-6	0	0	0	0
	Foreign DACs	00	00	5 0	00	00	00	• •	00	00	00	00	00	00	00	o c	00
	Total	۲۰	-	٥		7				0	0	0	0	0		0	0
	Temporary			•		•	,			•	•	(-		(,
	US Foreign	- 0	၁ ၁	00	- 0	~ o	00	00	≅ 0	n 0	00	00	6 0	- 0	00	0	
	DACs	0		0	0					0	0	0	0	0		Ì	٥
	Total	-		٦	=	7	6					0	3	-			

							TABLE E-1	£ . 1									
						PERS	PERSONNEL BY LOCATION	LOCATIO	3								
	_		INITAL	7			ALPHA				BRAVO				CHARITE		
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS T	TOTAL	MAINT SE	SUPPLY TR	TRANS TO	TOTAL	MAINT SU	SUPPLY TR	TRANS F	TOTAL
124th Mf BN	Permanent	~															
	Foreign DACs	v 0 0	000	000	\$ 0	v 0 0	000		<u> </u>	000	000	000	000	000	000	000	000
	Total	5	Э	9			0	э	3	0	0	o	0	o	О	0	
	Temporary US	0	0	0			0	0	0	0	0	0	0	0	0	0	0
	Foreign DACs	0 0	0 0	0	50	0 0	0	0 0	00	0 0	00	0 0	00	0 0	0 0	0 0	00
	Total	0	0	0			٥	Э	0	0	0	٥	9	0	0	0	٦
142d f a B DE	Pernanent US Foreign DACs	000	000	000	000	000	000	0 0 0	000	000	000	000	000	000	000	000	000
	Total	0	0	0	O		0	0	0	0	0	0	0	0	0	0	0
	Femporary US Foreign DACs	000	000	000	000		000	000	-00	-00	000	000	-00	000	000	000	000
	Total	0	0	0	0		0	٥	-	-	٥	٥	=	0	0	٥	٥
and ACR	Pernament US Foreign DACs	000	000	000	000	000	~00	000	000	000	-00	000	200	6 00	-00	000	200
	Toloi	0	0	0	O		-	0	ō	٥	-	0	9	5	-	0	10
	Temporary US Foreign DACs	000	000	000	000	400	000	000	* 0 0	400	000	000	400	000	000	000	0000
	Total			٥	0		7	5	9	9	٥		7	٥			2)

							Ž	TABLE E- !									
						33	SONNEL	PERSONNEL BY LOCATION	PON								
			INTIAL	₹			ALPHA	\$			BRAVO	9			CHARIE	372	
LCCARON		MAINT	SUPPLY	TRANS	POTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL
															:		I
2nd AD	Permonent US	0 6	0	5 (0						0						
	DACs	0 0	0 0	0 0	00	0 0	0 0	C C	0 0	0 0	0 0	00	00	00	0 0	0 0	00
	Total	٥	٥	0	a						0						
	femporary US	•		0		0					0						
	Forelon	00	0	00	66	00	00	00	666		000	000	0		000		000
	Tokal	o		0	0	0					0						
		! !															
24th 10	Permanent US	٥		0	•	2											
	Foleign	00	00	00	00	0 9	00	00	0 4	00	00	00	00	00	00	0 0	00
	Total	٥		0	0	2/											
	Temporary US	.		0 (\$ 0	\$											
	DACs	0	00	o 0	50	90	0	o	50	0	> 0	0	5 0	- 0			5
	Total	43		0	5	5					0		$\{\ \}$				
212m FA 80E	Permonent US	0	0	0	0	0					0						
	Foreign	00	00	00	00	00	00	00	00	00	00	o o	0 0	00	00	00	0 0
	Total	0	0	0	0	0					0						
	Temporary	C	c	Ċ		2					ć						
	Foreign	0	0	0	56	20	0	00	0	00	00	0	00		00	0	0
	DACS				000	2										Ì	İ
	1010				3						1						

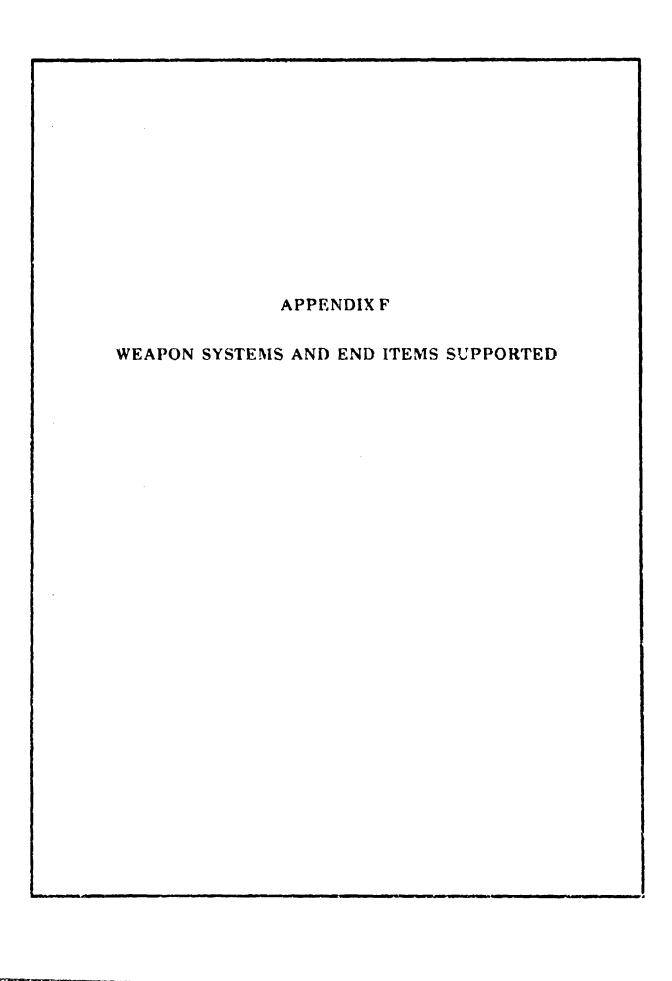
							X	TABLE E-1									
						PER	SONNEL	PERSONNEL BY LOCATION	NON								
			INITIAL	7			ALPHA	₹			BRAVO	و			CHARIE	ž.	
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY TRANS	TRANS	TOTAL
	•																
30 ACK	Permanent US	•		0							-	0	0			0	=
	Foreign DACs	၀ ၁	0 0	0	00	00	00	00	00	00	00	00	00	00	00	00	00
	Total	9		0							-	0	0			0	=
	femporary US			0							^						
	Foreign		00	00	00	00	00	000	CC	00	0 0	000	00		000	000	0 0
	Total	4		0							2						
3rd AD	Permanent US	•	0	0	0	9						0	2			0	8
	Foreign DACs		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	Total	0	0		٥	2		İÌ				0	7			0	×
	femporary US Foreign DACs	000	000	000	000	000	000	000	000	000	000	000	-000		000	000	000
	Total	O		0	0	P					0	О	O			0	
JSM SIG BDE	Permanent US Foreign	00	0	0	0	3	0	!	60		00	6	9	0	0 0	0	000
	Tolor		٥٥	9	0	٦						٥	2 8				
	Temporary US	0			0	0					0	0					
	Foreign DACs	00	င္ပ	00	00	00	00	00	00	00	00	00	00	00	00	00	00
	Total	0			0	o				0	0		6				

							748	FABLE E. !									
				:		8	SONNEL B	PERSONNEL BY LOCATION	Ç								
		·	INITIAL	74			ALPHA	5			BRAVO				CHARUE		
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRAMS I	TOTAL	MAINT S	SUPPLY II	TRANS	TOTAL
														i :			
82nd ABD	Permanent US			0	8						-	0	- 40	S	-	0	~~
	Foreign DACs	00	\$ 0	00	00	00	00	00	00	00	0 0	00	00	00	00	00	00
	Total	0		0	O						-	0	5	5	-		c
	lemporary US			O		-			-			C		c	c	c	
	Foreign		000)) C	000	· • •	000		00	• • •	000	00	, 0 c	000	, o c	000	0
	Total	, 0		20	70) -			5 -		, 0	0	2/2	20	2 0	2 O	0 (
TF 8-43/32 ADCOM	Permanent	 						i								1	
	US Foreign		000	000	000	~ 0 0	000	000	000	000	000	000	~ 5 °	000	000	000	000
	Total	0		0	0	2			2		0		7	2 0	0	0	2
	Temporary US Forelign	000	0	0	00	0	0	0	0		0	0	000	0	000	000	0
	Total	٥٥		0	0	0		0 0	0		0	0	0 0		0	၁ ၁	O
III Corpe Element	Permanent US Foreign	000		000	00	e 0 (60		00	00	60	~01	000	00	-00
	Iolal Tolal	20		20	0	3			5 m		5 0	0	⊃ E	5 ~	٥٥	٥٥	2 -
	Temporary US Foreign DACs	000		000	000	0			300		0 0 0	000	000	000	000	000	900
	Total	٥		0	٥			0	0		0	О	5	0	0	0	°

						:	3	TABLE E. 1									
			ļ			PER	SONNEL	PERSONNEL BY LOCATION	NON			!	i				
			INTIAL	¥			ALPHA	\$			BRAVO	Q			CHARIK	ž	
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL
4 ACC 17.																	
	US Foreign	000	000	000	000	-00	000	000	-00	000	000	000	800		000	000	700
2	Total	0 0	> =		0	2					0						
	Temporary US	c	5	c						-							
	Foreign	_	000	000	000	. 0 0	000	;	00	00	000	000	- 0 0	- c c		000	- 0 0
1	Total	0	0	0	0	-) 0			` -) 						
XVIII Corpe P	Permanent US	0	0	၁		0	0				0	0					
	Foreign DACs	000	0 0	0 0	000	0 0	000	000	000	0 0	000	000	0 0	0 0	0 0	0 0	00
2 2	Temporary US Foreign	00	00		00	00									}		
) To	DACs Total	00	၁	00	0	00	0 0	00	00	00	00	00	0	0 -	0	00	0 ~
Berman Pa	Permanent US Foreign DACs	000	000	000	000	0000	- 0 0	!	!	3	- 0		400	0	- 0 0	000	400
21	Total	٥	0	0	0	2	-			3	-						
2 - 3 0	Pemporary 1,15 Foreign DACs Total	000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0 0 0 0	0000	0000	0000	0 0 0

					ļ	PERS	ONNEL B	PERSONNEL BY LOCATION	NQ.							}	
			INITIAL	7			AIPHA	<			BRAVO	Q			CHARUE	RUE	
LOCATION		MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL	MAINT	SUPPLY	TRANS	TOTAL
Egypilan	Permanent			c		_	c			c	c						
	foreign	00:)) (9 9 9	000	00	00	00	00	00	00	0	0			0	5 0
7	Total	0			50	9 0			olo	00	00						
1	Temporary	,		,	,		}				'						
	Foreign	000	၁၁	00	557	- 0	၁၁))	- 5	~ 0 (00		- 0		000	900	. .
	Total	0		0	5 5	> -	0	٥٥	5 -	-	٥١٥						
Omer	Permanent US		0	0	ပ	0	0	C	0	~	0						
	Foreign DACs	00	0 0	00	00	04	00	00	0 4	00	00	0 0	00		00	0 0	0 0
<u></u>	Total	0	0	0	0	4	0	Э	9	-	0						
2	femporary US Foreign DACs	*00	000	000	•00	រ ០	000	000	60 0	<u>0</u> 0 0	0 0	000	20		9 0 0	0 0	6 0
-	old	٥		0	٩	13		0	13	2							
nswc	Permanent US Foreign DACs	000	800	000	000	800	-00	000	900	000			000			0 0	200
	Total	0		Э	0	5	-	0		٥							
b.	Temporary US Fareign DACs	000		000	c o o	3 0	0	000		600			600				3
	oto	0		0	0	["				ľ			l				

							TABLE E-1	-									
						PERSO	PERSONNEL BY LOCATION	LOCATE	×								
			INITIAL	7			ALPHA				BRAVO	0			CHARLE		
LOCARON		MAINT	SUPPLY TRANS	- 1	TOTAL	MAINT SI	SUPPLY	TRANS 1	TOTAL	MAINT	SUPPLY TRANS	TRANS	TOTAL	MAINT S	SUPPLY TRANS	- 1	TOTAL
Corps Recal	Permanent	·		C	c		c	c		c	c	•			c	c	
	Foreign	-	00	882	88	00) 0	2 4 30 c	25.0	0	0	2 8 8	- 88 8	0	- 0	⊃ 88 %	8
	OACs	0		0	0		0	0	0	0	0	0			0	0	0
	Total	0	Э	882	982	ပ	0	2470	2420	0	0	5000 5000	2000	0	0	2000	2000
	Temporary													 			
	Sn	0		0	0		0	o	0	0	0	0	0		0	0	0
	Foreign	0 0	0	0 0	0	00	0	0 0	<u> </u>	0 0	00	0 0	00	00	00	0 0	0 0
	Total	0		0	ō		0		70	0			0		0		70
, ora																	
	US	426		12	515		130	15	8	112	83	15	945		159	5	8
	Foreign	_	0	885	983	8	0	2445	2465	13	0	2025	2937	0	0	2925	828
	DACs	12		0	8		187	٥	199	471	8	ပ	767		88	0	770
	Total	430		804	1428	976	317	2460	3725	1255	454	2940	4649	1367	457	2940	4664
	Temporary																
	S	28		₹ (35		Φ.	₹.	8	&	2	7	101		0	m :	8
	Foreign	_	0 0	0 0	0 0	o º	o -	c c	5 5	0 0	o ~	0 0	<u>5</u> 0	0 0	o -	o c	5 -
	Total	7		4	3		<u> </u> =		125	0	=	1	12.	İ	-	,	Ŗ
	1000	23		,	361	-	2	-	143	3	-	7	121	3	•	,	ţ



WEAPON SYSTEMS AND END ITEMS SUPPORTED

In this appendix, Table F-1 shows the weapon systems and end items that contractors and DACs supported during Operations Desert Shield and Storm. Also, two table entries reflect the bus and truck drivers provided by foreign contractors. For each weapon system or end-item entry, the table shows the war phases in which that system or end item was supported and who provided the support. In the table, the following three abbreviations are used: C for Department of the Army Civilians, F for foreign contractors, and U for U.S. contractors.

TABLE F-1
WEAPON SYSTEMS AND END ITEMS SUPPORTED BY PHASE

18/a hannan (an diana)		Ph	ese	
Weapon system/end item	Initial	Alpha	Bravo	Charlie
AB-1309 (V)4/TRC Quick Erect Antenna Mast		Ü	Ü	U
ADP equipment	υ,		U	ti i
AGT 1500 gas turbine engine	U	U	ับ	U.
AH-1	U	U	Ų	Ü
AH-15/E	C	c .	c	c ·
AH-64	IJ, C	IJ, C	כ	ان د
AH-64A	i i	ט (ប	Ü
Aircraft engines	U	U	υ	Ų,
ALDS 1790 diesel engine	}	u	ម្	U
AM-6000 (radio)	,		υ	υ
AN/ASC-158 C(3)		u	ນ	Ü
AN/GRC-222 (radio)	}	ับ .	Ü	U
AN/PSC-3 (radio)	j		U	U
AN/TSQ-138 Traiiblazer	U	U		
AN/TTC-39A	U	U	Ų	U
AN/TYC-39	∤ υ	Li .	บ	U
AN/TYQ-30	{	υ	υ	
C-23A	ע	Ü	ช	υ
CH-47	U, C	U,C	U,C	ប្, c
CH-47D	l ti	ប	IJ	L
Chemical protection equipment	{ c] c	c	c
Common hardware/software	1	U	U	ن
CTASC-I	U	U	ני	U
07 buildozers	}	F	F	
Drivers - bus	F	F	F	f
Drivers - truck	F.	F	F	F
DSESTS	U	U .	U	Ü
EETFS (OQ-290)	U	U	b	υ
EH-60	c	c.	Ċ	C
FIREFLEX		U	U	Ļì

Note: $C = \mathsf{Oppartment}(\mathsf{off}) + \mathsf{Army}(\mathsf{Civ})$ and $\mathsf{F} = \mathsf{fore}(\mathsf{gn})$ contractors, and $\mathsf{U} = \mathsf{U}(\mathsf{S})$ contractors.

TABLE F-1
WEAPON SYSTEMS AND END ITEMS SUPPORTED BY PHASE (Continued)

		Ph	ase	······································
Weapon system/end item	Initial	Alpha	Bravo	Charlie
Fixed-wing aircraft	U	U	U	U
FOX nuclear-biological-chemical reconnaissance system	U, F	U, F	U	U
G/VLLD system laser designator rangefinder		c	c	i
GPS receivers		U	U	U
HAWK missile	U	U	U	U
HELLFIRE		U	່ປ	U
HETs commercial]	U	U	υ
HST-4 (radio)		U	U	U
IEW equipment (various)	Jυ	U	U	υ
IGT-40B engine		ļ	U	U
IHADSS	U	U	υ	U
Inland petroleum distribution system	U	υ	U	υ
Joint TADIL-A distribution systems (JTADS) - Patriot			U	U
Light TACFIRE		U	U	U
LST-5	İ	U	U	U
M 1	u, c	u, c	u, c	u, c
M1AI	U, C	U, C	U, C	u, c
M1-iPM	υ, c	u, c	υ, c	u, c
M2 (Bradley Fighting Vehicle System)	U, C	u, c	u, c	U, C
M3		c	c	c
M9 ACE	}	u, c	u, c	υ, ς
M60		}	υ	U
M88	U	U	U	U
M88A1			}	U
M109	U	U	U	U
V:57 7	U	U	U	U

Notes: C = Department of the Army Civilians, F = foreign contractors; and U = U.S. contractors

TABLE F-1
WEAPON SYSTEMS AND END ITEMS SUPPORTED BY PHASE (Continued)

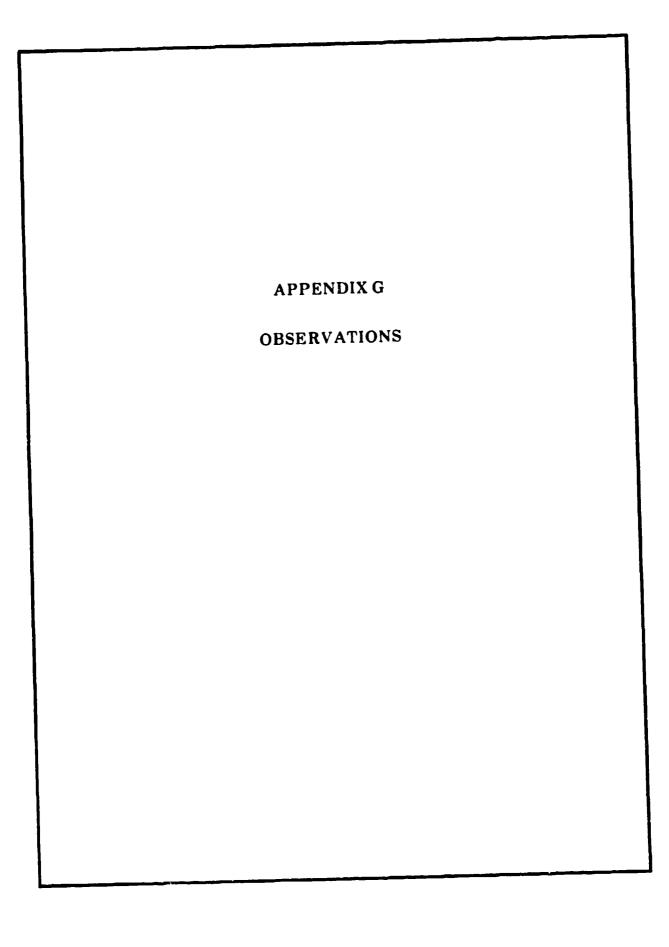
18/		Pha	ase	
Weapon system/end item	Initial	Alpha	Bravo	Charlie
M603A	Ü	υ	U	Ų
M901A/ITV			U	U
M981/FISTV			U	U
MH-60L				U
MLRS		U, C	U, C	U, C
MSE	U	U	U	U
MSM-105	U	υ		
OH-6	U	U	U	U
OH-58C	u, c	U, C	U, C	U, C
OH-58D	u, c	u, c	U, C	U, C
Other equipment	U, C	U, C	u, c	u, c
OV-1D	c	С	c	c
Patriot	U	U	U	U
QUICKFIX	Ì	c		
Rotary aircraft	U	U	U	U
RC-12D	c	c	c	c
RV-1D	c	c	c	C
T700 engines	U	υ	υ	υ
Tactical vehicles	c	c	c	c
TADS/PNVS	U	U	U	υ
TOW	{	U, C	U	U
TOW2		U	υ	U
TOW-SE		U	U	U
Toyota 4x4s		F		
TRITAC		U	U	U
UH-1	υ	U	U	U
UH-1H	С	С	u, c	υ, c

Notes: C = Department of the Army Civilians, <math>F = foreign contractors, and u = U.S. contractors

TABLE F-1
WEAPON SYSTEMS AND END ITEMS SUPPORTED BY PHASE (Continued)

		Pł	nase	
Weapon system/end item	Initial	Aipha	Bravo	Charlie
UH-58	U	U	U	U
UH-60	U, C	U, C	u, c	u, c
UH-60/L	U	U	U	U
UN-1		U	U	U
UN-60		U	U	U
URC-101/110		U	U	U

Notes. C ≈ Department of the Army Civilians; F = foreign contractors, and U = U S contractors



OBSERVATIONS

During the course of our research and interviews, we were exposed to a voluminous amount of documentation and other information that led us to some observations concerning employment of contractors and Department of the Army Civilians (DACs) during the operations, which, while peripheral to our central efforts, are presented here as a byproduct of the study. They are presented because ignoring these observations, would be a disservice to the study recipients.

- Contractors performed an essential and vital role in the theater. Given the downsizing of the Military Services, the fact that a number of systems were fully contractor supported [e.g., mobile subscriber equipment (MSE)], and the nonavailability of trained military technicians with all the skills to accommodate all the maintenance requirements, there was no viable option other than to use contractors to supplement the "green-suit" maintenance. Thus, the contractors' presence was all the more essential. Civilian support was viewed as very helpful at all levels. Many contractors in Southwest Asia were ex-military personnel (our research indicates that more than 65 percent were former military personnel, a potentially sign: "cant point relating to contractor experience). They brought expertise and knowledge about the job they were contracted to perform and how the Army operates.
- Contractors were brought in to the Gulf early to fill a military logistics support void occasioned by the strength ceilings placed on U.S. Central Command and the need and desire of senior Army leadership to quickly maximize the combat power on the ground to counter the threat of invasion by Iraqi forces. The contractors provided flexibility and skills on short notice, minimizing the burden on the Army. Most high-tech maintenance contractors in SWA provided the Army with the same or very similar support as during peacetime.
- The host nation, Saudi Arabia, and other Coalition forces provided transportation, water, food, fuel, and support personnel reducing the demands on U.S. Military resources. Some of that support was contracted for by, or through, the host nation. One should acknowledge that the deep involvement of the host nation was in some ways a unique situation; one should not assume that such support will occur (to the degree it did, if at all) in future conflicts.
- The infrastructure of the host nation affects, if not dictates, the type and scope of contractor and DAC support needed.

- In a number of ways, the sparse Saudi Arabian environment faced by the U.S. Forces dictated the need for more extensive use of contractors to fill the void created by the nonavailability of an existing logistical support infrastructure.
- When using contractors and DACs, flexibility is essential. That is, the Army must be organized to rapidly deploy, employ, expand, contract for, change missions for, and terminate the use of these resources. However, a clear definition of what is needed is also required. For example, for the maintenance function, the following questions should be answered: What level of maintenance is required? Where is it needed and for how long? How many people will be required? What parts, tools, and test equipment will be needed? What life support will be provided for personnel? What is the need for health standards; rotation policy; command, control, and communications; and transportation?
- There was some concern about having units provide life support to U.S. contractor personnel. During the initial deployment, that was a problem. However, as the theater matured (and depending on the particular location involved) it became less of a problem.
- The further forward one goes on the battlefield in SWA, the fewer contractors were found. Only a very few contractors were assigned with the divisions and few were assigned in the Corps Support Commands (COSCOMs). Most contractors were at echelons above Corps and at the permanent installations such as ports, airfields, and facilities in metropolitan areas. However, a number of contractors traveled all around as mobile maintenance teams and other specialty teams.
- The consensus of most of the respondents was that there is a role for contractors and DACs on the battlefield, but it is mostly at echelons above corps. That role needs to be more fully defined in applicable Army policy and procedure.
- Little evidence exists to support the notion that many contractors went into Kuwait and Iraq with the attacking forces. Contractors with the divisions were with those that had high-technology weapon systems. While several contractors went forward after the conclusion of the 100-hour ground war, most did not, citing company restrictions against going. That was not the case with the Logistics Assistance Representatives (LARs). Considerable evidence exists to support the claim that assigned LARs did accompany their units and organizations into 'raq and Kuwait.
- There were some logistical mistakes, but many major logistical successes in the Gulf war. Thus, it is difficult to determine causes and effects, including positive results obtained through the use of contractors and DACs. However, it appears that the most important uses of them were for weapon systems maintenance and material transportation. Such support was

decidedly a logistics multiplier. Contractors and DACs made a significant contribution to readiness. Participants attribute 5 to 15 percent of achieved readiness directly to the efforts of the contractors and DACs.

- The extraordinary means (i.e., the use of contractors) that were used were successful in part because of the failures of the Army's supply/distribution system to fully respond.
- While contractors were invaluable in obtaining spare parts, their activities circumvented the Army's supply system and helped this system break down. Contractors also provided the in-transit visibility that the Army lacked.
- Some people perceived a lack of clear command and control over contractors. Army units had difficulty determining who had management control over the contractors. Who did they work for, Army Materiel Command Major Subordinate Commands (AMC MSCs)? the in-country senior MSC representative? Army Materiel Command Southwest Asia? or LAOs? Soldiers, particularly higher level ones, found it difficult to distinguish a LAR from a contractor. On the other hand, those in charge of the contractor effort knew who those contractors were and what they were doing. Our interviewees sensed that the contractors were not aware of the commanders' intent and the political considerations of their efforts.
- The requirements for the use of contractors and DACs must be specified in operational and contingency plans.
- For the most part, civilians (contractors and LARs) were not in good physical shape that was necessary to endure the rigors of the battlefield. However, contractor participants indicated that, overall, they withstood the stress of battle preparation and battle quite well. What they lacked in physical stamina, they made up for in dedication. Many were ex-military members who wanted to be involved in the action.
- It is questionable whether the civilians would have remained when the bullets started flying. There were a few instances of contractors/DACs wanting to leave the theater because of the dangers of war. However, many people have doubts about how long they would have stayed if the operation had become costly in lives.
- One of the more valuable roles that the contractors played was in getting spare parts from their sources. What happens when the contractors do not have parts contracts with the Army, but instead with the Defense Logistics Agency (DLA)? What happens when more and more maintenance and supply contractors come under the control of DLA?
- Many maintenance tasks were performed in the theater by civilian contractors or LARs that have or could - have been performed by soldiers. A number of Army leaders feel that if soldiers are given the required amount

of training, they can do anything contractors can do and that soldiers are preferred. Contractors performed depot-level missions that were within the capabilities of direct support/general support mechanics. However, this mix of maintainers was situational at best. It would be folly to believe that such a mix would fit all scenarios in which the Army could find itself participating. The Army would be remiss in designing future contractor support doctrine purely on the basis of the experiences in Operation Desert Shield/Storm.

- As in the case of the CONUS/Europe-based Army that supported the effort, all contractor support of the effort is not just limited to efforts in the theater. In a number of instances, support personnel, operations, and facilities in CONUS were dedicated to support the contractor effort in the theater - sometimes at an added cost to the Army.
- Plans for DACs to accompany the forces into the theater either did not exist or were sketchy at best. Therefore, DACs were not included in the plans for transportation assets, communications assets, and so forth. This became a real shortfall for DACs whose missions were mobile in nature. While contractors fall under the same set of circumstances, they had the ability to compete on the open market for vehicles, space, and so forth.
- The language barrier between soldiers and non-U.S. contractors is a general problem. If the Army is going to rely heavily on host nation contractors, people with the appropriate language skills must be made available.
- In the future, as we fight "come as you are" wars with an uncertain industrial base and high-tech weapon systems, greater use of contractors and DACs will be required.

Contractors have accompanied U.S. Forces into battle since the Revolutionary War; therefore, a strong precedence for their presence and use exists. There is a role for the contractor on the battlefield, particularly when the skills needed are not available in the Army, either active or reserve, or where the tasks are so complex that it is not economically beneficial for the Army to maintain the needed capability within the force.

We believe that contractors should be a supplement to the logistics force structure, used judiciously where applicable, but should not be a replacement force. The Army must come to grips (doctrinally) with the role that it wants its contractors to play; then it must develop supporting policy and procedures. As one interview respondent mused, "After all, would you hire out your infantry?"

REPORT DOCUMENTATION PAGE

Form Approved OPM No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response including the time for reviewing instructions, searching existing data sources gathering, and maintaining the data needed, and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Neadquarters Services, Directorate for information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202 4302, and to the Office of Information and Regulatory Affairs, Office of Management and Budget Washington, DC 20503.

1. AGENCY USE ONLY (Leave Blank)	2. REPORT DATE June 1993	3. REPORT TYPE A	ND DATES COVERED
4. TITLE AND SUBTITLE Army Contractor and Civilian Ma Desert Shield and Desert Storm.	untenance, Supply, and Transportation Volume 1: Study Report	n Support During Operations	5. FUNDING NUMBERS C MDA903-90-C-0006 PE 0902198D
6. AUTHOR(S) George B. Dibble Charles L. Horne, III William E. Lindsay			
7. PERFORMING ORGANIZATION NA Logistics Management Institute 6400 Goldsboro Road Bethesda, MD 20817-5886	ME(S) AND ADDRESS(ES)		B. PERFORMING ORGANIZATION REPORT NUMBER LMI-AR113-01RD1
9. SPONSORING/MONITORING AGES Office of the Deputy Chief of Staff Department of the Army The Pentagon Washington, DC 20310	* * * * * * * * * * * * * * * * * * * *		10. SPONSORING:MONITORING AGENCY REPORT NUMBER
11. SUPPLEMENTARY NOTES			
12a. DISTRIBUTION/AVAILABILITY S' A: Approved for public release;			126. DISTRIBUTION CODE
Operations Desert Shield and Deser provided it, by phase. It also provid	najor foreign contractors who support t Storm. It identifies where they we	re in the theater, what type of artment of the Army civilians	sian Gulf Theater of Operations during support they provided, and when they who served in the theater of operations. ipport is included.
14. SUBJECT TERMS			15. NUMBER OF PAGES
			16. PRICE CODE
17 SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE Uniconsisted	19. SECURITY CLASSIFICATIO OF ABSTRACT Unclassified	N 20. LIMITATION OF ABSTRACT

END FILMED

11-93

DTIC